

small air forces observer

vol. 41 no.3 (163)
January 2018

US \$5.00
Canada & Mexico \$6.00
All others \$7.00



Argentine Super Etendard in Action
Marcel Bloch MB-200 in Slovakia
Chinese Lean-Lease Aircraft
The LVA in 1918 (Part 1)

vol. 41 no. 3 (163)

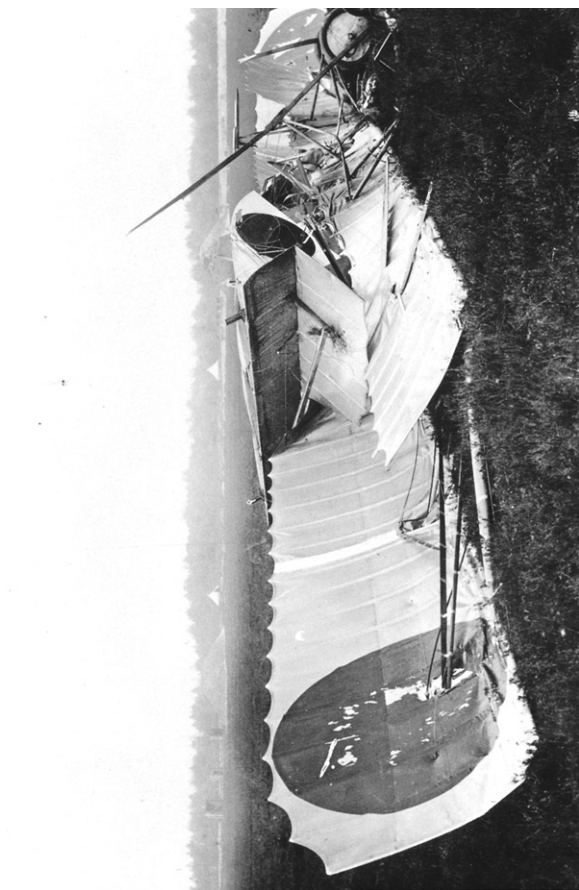
January 2018



Nieuport 23 N220 was flown with a gun on the top wing; on 7 August 1918.



Caudron G.4 C427 was test flown on 30 July 1918. No other Caudrons were assembled.



The wreck of Caudron G.4 C427 on 1 November 1918.



The wreck of Farman HF19 on 1 November 1918 after a head-on collision with C427. The undercarriage leg identifies the plane as an HF.20.

SMALL AIR FORCES OBSERVER

The Journal of the Small Air Forces Clearinghouse

E-Mail: safo@redshift.com

CONTENTS

Abstracts	76
Argentine Super Etendard (Dildy & Calcaterra)	77
MB-200 in Slovakia (Rajnec)	88
LVA 1918 Part 1 (Gerdessen)	89
Chinese Lend Lease Aircraft (Yip)	95
Books	102
Brewster Buffalo	
Russian Colours Vol. 3 Red Stars	
100 Hour War	
Sea Harrier vs Mirage III/Dagger	
Decals	105
Kits World 1/72	
Bronco	
Sabre	
Hurricane	
Letters	106
Ognjevic	
Gostowski	
Barratt	
Kozak	

SAFO EDITORIAL POLICY:

The purpose of the Small Air Forces Clearinghouse (SAFCH) is to "promote interest in the history and modeling of the aircraft of the smaller countries". In support of this goal, the SAFCH encourages international cooperation in researching aviation history, both military and civil, from all periods of time, and for all the smaller countries. The results of this research are published in our quarterly journal, the Small Air Forces Observer (SAFO)

SUBSCRIPTION RATE:

Annual subscription to four issues of the paper edition costs \$20.00 in the USA, \$24.00 in Canada and Mexico, and \$28.00 for airmail to the rest of world. Four issues of the cyber editions cost \$12.00. Payment may be made in currency, by International Money

Order, by a check in US dollars, or via PayPal to safo@redshift.com (add 7% for PayPal fee). New subscriptions begin with the next issue published after payment is received. If you desire otherwise, specify which back issues are desired. Send remittance to Jim Sanders, 27965 Berwick Dr., Carmel, CA 93923 USA.

BACK ISSUES: Back issues are available for all issues of the SAFO. Original issues (when available) are free - you pay only for p&p. Out-of-print issues are available two ways: (1) As high-quality Xerox copies for \$3.00 plus p&p. (2) Via e-mail as .pdf documents (when available) for \$3.00. Note: All .pdf issues after #137 are in color. For a list of all issues, their content, and their availability send an e-mail request or \$2.00 for snail mail to the editorial office.

SMALL AIR FORCES OBSERVER (USPS 439-450) is published quarterly for \$20.00 (USA) \$24.00 (Canada & Mexico), and \$28.00 for all others, by the Small Air Forces Clearinghouse, 27965 Berwick Dr., Carmel, CA 93923. Periodical Postage Paid at Carmel CA and additional mailing offices.

POSTMASTER: send address changes to Small Air Forces Clearinghouse 27965 Berwick Dr., Carmel, CA 93923.

COPYRIGHT: Copyright © 2018 by Small Air Forces

Clearinghouse. All rights reserved. The content of this publication cannot be reproduced in whole or in part without the written consent of the publisher and the author.

THE SYDNEY AWARD: This is a quarterly award given to a member who has consistently provided excellent articles for publication in SAFO. The awards consists of a one-year subscription to SAFO and is funded by the Richard E. Cross and Naidene Denton Cross Memorial Fund. The honoree this quarter is Jorge Felix Nunez Padin for publishing his fantastic series on Argentine aircraft and his enthusiastic support of the SAFO.

COVER COMMENTS: The single greatest threat to the Royal Navy's Task Group (TG) sent to repossess the Falklands Islands/Islands Malvinas was the Argentine Navy's four operational Dassault-Breguet Super Étendard (SUE) attack jets and five Aérospatiale AM 39 Exocet anti-ship missiles. The fact that the SUE could dramatically extend its range with air-to-air refuelling enabled it to reach the RN TG well beyond its usual operating radius. The Argentine Navy's three SUE/Exocet attacks are described in detail in Doug Dildy and Pablo Calcaterra's article, beginning on page 77. (Martin Otero)

AUSTRALA

AUSTRALIAN PLASTIC MODELLERS ASSOCIATION

(APMA, PO Box 51, Strathfield, NSW 2135; 4 issues airmail A\$40. International payment is best handled via Paypal at iansharyn@bigpond.com.au). Web Site: www.apma.org. All articles have b&w or color photos and excellent scale drawings.

3/2017 (32 pages) APMA has come up with a unique way to ensure an issue covers all aspects of scale modeling: they have devoted an entire to a single manufacturer – Vickers. With articles on aircraft, tanks, ships, and machine guns. The aircraft article are: “Vickers Viking in 1/72” 2 pages incl. history, kit reviews, color scheme, and full-page drawings w/ port view of RAAF A81-1 and starboard view of VL-231. “Vickers Type 151 ‘Jockey’ Fighter Prototype” 2 pages incl. history, modeling, and 1/72-scale 3-view drawing. The remaining 28 pages covers other Vickers projects: “Vickers Commercial Light Tank”, “Vickers 6 Ton Tank”, “Dragon Medium Mark IV”, Peruvian Almirante Grau Class Cruisers”, “40mm 2pdr Pom Pom”, “Australian Vickers Mark VIA Light Tank”, Vickers 1 Pounder ‘POM-POM’ Artillery”, and “Vickers Machine Gun”

AUSTRIA

OFH NACHRICHTEN (Oesterrichische Flugzug Historiker, Pfenninggeldf 18/2/14, A-1160 Wien.

3/17 (44 pages) “Das Pyjama – Victoria Cross” 14 pages on Alan Jerrard VC incl. 15 photos, a color profile of his Sopwith Camel, and a list of his 7 aerial victories. “Die Organisation der Funkaufklärung” 10 pages incl. 8 photos and 5 maps. “Hopfner Sportflugzeug HS 5/28” 2 pages incl. 4 photos and a side-view drawing. “NATO Tiger Meet 2017” 2 pages with 6 photos (2 in color) of Austrian Saab 105OE.

FRANCE

AVIONS: Toute l'Aeronautique et son Histoire (Lela Presse, 29 rue Paul Bert, 62230 Outreau, France. 71 euro for 6 issues). Website: www.avions-bateaux.com. E-mail: contact@avions-bateaux.com.



#219 2017 Septembre/Octobre (98 pages) “No 351 et No 352 (Y) Squadrons: Les partisans de la Royal Air Force (1^{re} partie)” 20 pages incl. 47 photos and 6 color profiles (Hurricanes and Spitfires w/ Partisan roundels). “Des plumes et un point d’interrogation” 17 pages incl. 34 photos and 12 color profiles (Hanriot HD.3, Breguet 14, Gourdon-Leseurre ET1, FAB 17, Potez 25 & 452, Liore et Olivier LeO H43 & LeO H257, Liore 130, Dewoitine D.372, Romano R.82, and Caudron C.635 Simoun). “Grumman F6F Hellcat: 1944 l’année décisive” 14 pages incl. 22 photos, one map (Iwo Jima), and 6 color profiles [F6F (4), Zero, & Val]. “Les l’Armée Impériale Japonaise en 1941 (3^e partie)” 8 pages incl. 9 photos, two 3-view drawing (Ki.43 & Ki.44), and one color profile (Ki.27). “As 14-18: Gilbert Sardier (1^{re} partie) 4 pages incl. 14 photos. “Pilote de liaison à la JG 77” 9 pages incl. 20 photos and one color profile (Bf 109E). “Les MV-22 Osprey in Afghanistan” 14 pages incl. 25 photos.

GERMANY

IPMS Deutschland Journal. Website: ipmsdeutschland.de. All color. Subscription: Europe 36 E; others 40 E. **50/1 2017** (36 pages) “MiG-29 (9-12) der IRIAF” 8 pages on the building the 1/48-scale Great Wall Hobby kit, incl. 15 color photos of the aircraft and the completed model. “Junkers Ju 60 und Ju 160” 12 pages on building the Classic Planes 1/72-scale kits incl. 16 color photos of the finished models. “Ein Museumsbesuch im Arsenalen” 6 pages w/ 10 color photos of armored vehicles. No a/c, but great photos.

ITALY

JP4 Menslie di Aeronautica e Spazio. Via XX Settembre, 60-50129 Firenze, Italy. Email: jp4@dueservice.com.

Website: www.ediservice.it.

Settembre 2017 (100 pages) Color photos: Ukraine Ka-27 and China H6K; “RIAT (Royal International Tattoo) 2017” 6 pages incl. 17 photos (RAAF Boeing 737-7ES; France Mirage 20000; Jordan C-130H; Ukraine Su-27; Finland Hawk, Belgium LF-16AM; etc.) “Gli Eurofighter austriaci” 4 pages incl. 8 photos. “Il Leonardo M-346 in Israele” one page incl. 2 photos. “MiG-21 della Transilvania” 6 pages incl. 13 photos (Romania MiG-21 and IAR 330). “Vittoria Meneghini: Quarta Parte” 2 pages incl. 7 photos (Italy F-84). “Incidenti Militari” ½ page incl. 4 photos (Nigeria A109LUH and Germany Eurocopter UH1 Tiger).

Ottobre 2017 (100 pages) Color photos: Afghanistan Sikorsky UH-60; Australia PC-21; Bolivia Lockheed T-33; Canada Boeing CC-177; China Hongdu JL-8 & Nanshang CJ-6; France PC-21; Israel M-346; India Jaguar; and Poland M-346. “MAKS 2017” 5 pages incl. 25 photos of Russian a/c. “EC 2/8 ‘Nice’ l’addestramento congiunto franco-belga” 5 pages incl. 13 photos (Belgium Alpha Jets). “Un Macchi M.5 a Taranto” 2 pages incl. 8 photos of reproduction. “Incidenti Militari” 1 ½ pages incl. 4 photos (China Shenyang J15; Japan Kawasaki CH-101 ‘8193’; and Poland Mi-8MTV-1).

Novembre 2017 (100 pages) Color photos: Poland M-346; Brazil Super Lynx Mk21B; Bangladesh CN-235; and Mali Harbin Y-12E ‘TZ-WAB. “Esercitazioni ‘Shaheen 2017’ one page incl. 4 photos (Pakistan AWACS ZDK-03, JF-17, & Mirage VEF; and China AWACS KJ-200). “Russia: due anni in Siria” one page incl. 2 photos (MiG-29). “China Helicopter Expo 2017” one page incl. 4 photos. “F-Air Colombia 2017” 2 pages incl. 7 photos (Colombia ATR 42, Arava IAI-201, C-130, & Black Hawk). “Incidenti Militari” 2 pages incl. 8 photos (Iraq F-16C; Russia Tu-22; & Ukraine Aero L-29).

Argentine Navy Super Étendard in the Malvinas War

Douglas C. Dildy and Pablo Calcaterra

When British Task Force arrived in the South Atlantic to “repossess the Falkland Islands as quickly as possible”, the single greatest threat to its success was the Argentine Navy’s four operational Dassault-Breguet Super Étendard carrier-capable attack jets and five Aérospatiale AM 39 Exocet anti-ship missiles. The Super Étendard was an advanced development of the Étendard IVM (“Étendard” being French for “standard” or “battle flag”) that flew from the decks of the French aircraft carriers *Clemenceau* and *Foch* from 1962 until 1980.

The new “super” version – which first flew in October 1971 – was primarily distinguished from its progenitor by the dark nose radome covering its new Thomson-CSF Agave I/J-band monopulse radar that was specifically designed to employ the Aérospatiale AM 39 Exocet (French for “flying fish”) anti-ship missile (ASM). This large (1,500lb/670kg), very sophisticated weapon used position information of the launch location from the aircraft’s SAGEM-Kearfott ETNA navigation-attack system and the target’s relative position from the Agave radar to compute an intercept path and calculate the transition to its own terminal guidance radar. After launch the missile would descend to about two meters (6.5 feet) off the water and its solid-propellant rocket motor would accelerate it to 612 knots (1134km/hr). At such high speed and ultra-low height, and with its tiny radar signature, it would typically not be detected until 3.25NM (nautical miles; 6km) from its target – only 19 seconds to impact. Lugging one of these and carrying one 1,100-litre (290 US gal) drop tank under the other wing and a 600-litre (158.5 US gal) tank on the centreline station the Super Étendard had an unrefueled range of 460NM (850km) flying a high-low-high attack profile.

Called “SUEs” by the Argentines, the Comando de Aviación Naval (COAN) purchased 14 of them, along with 28 Exocet ASMs, in September 1979 to replace their squadron of aged Douglas A-4Q Skyhawk light attack jets, flying from their fleet’s sole aircraft carrier, ARA *Venticinco de Mayo* (25th of May, Argentina’s “Revolution Day”). Two years later the first five SUEs (See Note 1) and Exocets

were shipped to Puerto Belgrano naval base and, in a ceremony at Base Aeronaval (BAN) Comandante Espora on 17 November 1981, they were used to re-establish 2° *Escuadrilla Aeronaval de Caza y Ataque*. Nine more of each were to have arrived the following spring, but on 2 April 1982 the nation’s ruling *Junta* – believing that the British government were no longer interested in retaining Islas Malvinas (Spanish name for the Falklands) – repossessed them in an impressive amphibious operation called “Operación Rosario”, resulting in one of the most unlikely conflicts in modern history.

The immediate reaction of the European Economic Community was its 7 April embargo that prevented COAN from receiving its remaining SUEs and Exocets. Consequently, the squadron had to “make do” with what it had.

Preparations and Training

“La Lora” (“The Angry Parrot”) squadron’s operational training on the new strike fighter began December 1981, but this did not include any instruction on how to employ the Exocet. A group of Dassault technicians taught squadron ground crewmen how to mount the weapon on the aircraft, but the Aérospatial technical team that was to instruct the Argentinians on maintenance, servicing, and employing missiles had not yet arrived. Together these two teams were to have made the lethal SUE/Exocet combination operational by mid-April, but due to the embargo, the Aérospatial technical team never went to Argentina, and the Dassault technicians were hastily withdrawn. The latter kindly left behind all of their flying, employment and technical manuals – but of course they were in French!

From that point on, the squadron was on its own learning how to use their new – and awesome – capability. Capitán de Fragata (CF, equivalent of commander) Jorge Luis Colombo, commanding 2° *Escuadrilla Aeronaval de Caza y Ataque* received orders on 30 March to “make the Exocet missiles operational” as quickly as possible. Armament and avionics technicians practiced arming the SUEs with

the missiles and the pilots began a self-taught training programme.

To assist this learning process, the *Armada de la República Argentina* (Argentinian navy or ARA) conducted offshore naval exercises from 17 to 25 April. These included practising anti-submarine warfare (ASW) operations, surface actions, gun firings, and defending against air attacks. The last mentioned – conducted primarily by the uninitiated *Fuerza Aérea Argentina* (Argentinian air force or FAA) Skyhawk and Dagger units to help develop anti-ship attack profiles – were flown primarily against the ARA's two modern Type 42 destroyers, the *Santísima Trinidad* and *Hércules*. The British-designed Type 42, with its Sea Dart SAM system, was the most capable counter-air warship Argentine pilots would face, and the Royal Navy (RN) had at least four of them protecting its task force.

Against the ARA's Type 42s, Super Étendards flew "full-profile" maritime strike training missions and practised air-to-air refuelling (AAR) with the FAA's two KC-130H tankers – a rare example of cooperation between the two services. On these training missions, the ten pilots – flying in dedicated pairs – perfected totally radio-silent, all emitters off operations from take-off to targeting. Working with *Escuadra Aeronaval 2*'s two Lockheed SP-2H Neptunes, practiced locating and attacking targets more than 300NM (555km) offshore.

On April 19/20 four jets (Note 2) were flown to BAN Contraalmirante Hermes Quijada, at Río Grande, Tierra del Fuego (the large island off the southern tip of South America) while the other six rode the C-130 that carried the five Exocets. The four SUEs joined the 47 other serviceable warplanes – 19 FAA Daggers, 31 Skyhawks, and seven elderly Canberra bombers – that the Argentines had available to challenge, and hopefully defeat, the British armada as it approached the Malvinas.

First Strike – HMS Sheffield

While Task Group (TG) 317.0 – the task force's amphibious warfare units – gathered at Ascension Island, Rear Admiral John F. "Sandy" Woodward headed south with TG 317.8 to enforce the "Total Exclusion Zone", a 200NM (230 mile/370km) circle around the Islas Malvinas. His force consisted of the aircraft carriers HMS *Hermes* and *Invincible* (embarking 20 BAe Sea Harrier FSR 1s, known as

"SHARs"), four destroyers, six frigates and four Royal Fleet Auxiliaries (RFAs). With the failure of US Secretary of State Alexander Haig's "shuttle diplomacy" that unsuccessfully attempted to defuse the situation, Woodward went into action on 1 May, closing to 50NM northeast of Isla Soledad (East Falkland) to begin an "attrition campaign" intended to wear down Argentine air power before the amphibious forces arrived.

Hostilities began with RAF Vulcan and Royal Navy SHAR airfield attacks on Base Aérea Militar (BAM) Malvinas (nee Port Stanley airfield) and BAM Cóndor (Goose Green airstrip), followed later that day by naval bombardment by the destroyer HMS *Glamorgan* and two frigates. The FAA launched 21 Mirage III and Daggers air superiority sorties and 27 Dagger, Skyhawk and Canberra maritime strike sorties, but lost four aircraft and were unable to cause significant damage to British warships.

The following day was one of both sides posturing in anticipation of an air-surface engagement between the RN TG by the ARA fleet, the series of manoeuvres ending tragically with the torpedoing of ARA *General Belgrano*, an elderly but well-armed, 12,242-ton ex-USN WW2 cruiser, with the loss of 323 lives. Once it was confirmed that Argentine naval forces were retiring, on 3 May Woodward returned to his "attrition strategy" – hoping to again bring out the FAA to face his SHARs and ship-board SAMs – and TG 317.8 approached southeast of Gran Malvinas, planning to launch another air strike and conduct more naval bombardment the following day.

The British fleet was spotted by *Escuadra 2* Neptune's AN/APS-20 S-band Surface Search and Surveillance Radar (SSSR) and this information was duly passed to BAN Río Grande, from which CF Colombo and his wingman, Teniente de Fragata (TF, lieutenant junior grade) Macheteanz, launched at 1638hrs to attack them. The pair of SUEs successfully rendezvoused with their KC-130H "Chancha" ("mother sow"; TC-70 from *Grupo 1 de Transporte Aéreo*) but a refuelling malfunction resulted in this mission being aborted.

The following morning, as TG 317.8 closed to within 80NM of their target, the SHAR's airfield attack was postponed due to "very low cloud and possible fog", so the British warships began loitering in the vicinity waiting for the weather to clear. TG 317.8 was arrayed in its standard air defence

formation, but it was compressed with the “outer screen” of three Type 42 “radar pickets” only 18NM (instead of the usual 30NM) west of the main body. The picket line was composed of (north to south) HMS *Coventry*, *Glasgow* and *Sheffield*, with 15NM between them. The *Glasgow* was the Anti-Aircraft Warfare Control (AAWC) ship, working with two 801 Squadron Combat Air Patrols (CAPs) orbiting at medium level atop the solid undercast while 800 Squadron waited aboard *Hermes* to launch its airfield attack.

Additionally, about 8-10NM ahead of the carriers, and “behind” the line of picket destroyers was an ASW task unit composed of the frigates *Arrow* and *Yarmouth*, sweeping the sea ahead of the carriers to be sure they were not surprised by an Argentinian submarine attack. At this time, task group’s “main body” consisted of the carriers *Hermes* and *Invincible*, with the destroyer *Glamorgan* and frigate *Alacrity* leading and frigates *Brilliant* and *Broadsword* as their close-in air defense/ASW escorts (called “goalkeepers”).

“Mercurio”, the *Escuadra 2* Neptune (2-P-112), was “on-station” once again and its old AN/APS-20 radar duly detected the three “picket ships” on three occasions between 0710hrs and 0843hrs (local time; UTC/Zulu -3hrs). After the third contact, which consisted of three ships that seemed relatively stationary about 50-80NM south/southeast of the islands, “Rata” flight was launched from BAN Río Grande, taking off at 0945hrs and rendezvousing with its “Chancha” (TC-70) 20 minutes later.

Led by Capitán de Corbeta (CC, lieutenant commander equivalent) César Augusto Bedacarratz (callsign “Aries”, flying 3-A-202), with TF Armando Mayora (“Liebre”; 3-A-203) on his wing, the pair “topped off” and dropped off the tanker approximately 250NM from the target, descending through the clouds to 50-ft above the waves for their high-speed approach. The pair felt safe beneath the ragged, drizzly 300-to-500-ft ceiling; visibility was only six-tenths of a mile as they passed through squalls of rain and snow. (Note 3)

At 1035hrs “Mercurio” took one last look at the targets, recorded their positions 60NM to the east, then turned away and descended below the Type 42s’ “radar horizon” before – five minutes later – transmitting “in the blind” the targets’ location.

Bedacarratz made a course correction and patiently closed on that location at approximately 420 knots.

Bedacarratz later recalled, “When we received the Neptune’s call confirming the position of the targets, information that was crucial to reduce the risk of us being detected, I informed TF Mayora that we would head for the bigger ship that was to become our target. We flew at less than 30 metres [100-ft] above the water. Reaching the range from the target that we had agreed in our mission briefing, we climbed and scanned to look for the targets. Immediately we shut down our radars, descended and continued to the target, now at maximum speed to reduce approach time because they may have detected our radar emissions.”

In fact, at 1056hrs, when Bedacarratz “popped up” to 2,000-ft to have his Agave radar “take a peek” – *Glasgow*’s Electronic Support Measures (ESM – i.e., its electronic warfare sensors) noted the Agave’s emissions, bearing 245°, and the AAWC duly called “Agave, 245; Condor, 245”. (Note 4) Unfortunately, six minutes earlier *Sheffield* had gone “off-line”, shutting down its ESM equipment to make a satellite communications transmission back to the UK, and was not monitoring the frequency at the time.

Two minutes and approximately 15 miles later, Bedacarratz repeated the procedure, this time spotting three targets arrayed before him: two medium size contacts (*Coventry* and *Glasgow*, near bows on) with a third, larger target approximately 30° to the right. *Sheffield* presented the larger radar return because, coming in at a 40° off the starboard bow the Agave saw more broadside than presented by the other two, bows-on, targets.

Glasgow not only detected the Agave emissions, but its Type 965P long-range air surveillance radar picked up “two close but distinct contacts, bearing 240 [degrees], 40 miles, closing.” Two 801 NAS CAPs were on station, but one had been vectored 120NM southwest “to carry out a visual search for enemy surface units”. The AAWC called out “intermittent fast moving contact” west-southwest and sent the other CAP against it but, from above the overcast, looking down at an acute angle against the rough seas, the SHAR’s pulse-only “Blue Fox” radar could not detect the Super Étendards against the “sea clutter”.

At 1100hrs *Glasgow*’s Type 992Q air/surface search radar also detected the two SUEs. Things

began happening rapidly: the AAWC announced “Two low bogies, southwest, 25 miles,” and immediately piped “Action Stations! Action Stations!” *Sheffield* heard this transmission – and at about this time Bedacarratz turned his formation towards the ill-fated destroyer – the AAWC data-link indicated the approaching targets to the ship’s forward Type 909 (Sea Dart fire-control radar), but – as the Sheffield Board of Inquiry report sadly states – “acquisition was not achieved”.

“We climbed again,” Bedacarratz said later, “and now, with both radars we detected a medium-size ship just at the 12 o’clock position [*Glasgow*] and offset 30 degrees to the right [was] the large ship [*Sheffield*], with two smaller ones [*Alacrity* and *Yarmouth*] very near. Quickly we turned right, while descending to make the last stage of the attack run. When we reached the distance established in our procedures, I used the radio to order TF Mayora to launch his missile, while I did the same. He did not hear this order, so as he watched while my Exocet fell away and started its engine he asked if I had launched positively. I repeated the launch order, so he fired his missile five seconds later.”

“The first indication of the missile coming towards us was visual – a black dot that appeared to be smoking,” recalled the *Sheffield*’s Signal Communication Officer, Lieutenant Commander (LCDR) Peter Walpole, manning the starboard wing of the bridge, “so I... immediately took a bearing took a bearing on it, and reported to the Op[eration]s Room, “Something smoking bearing 297.” We had only a matter of seconds before impact, but I remember distinctly that it was beginning to draw to the right, so just before impact, I knew that it wasn’t coming straight for me but to the centre of the ship... I shouted twice down the handset to the Ops Room that they were to take cover. I wanted to go to the bosun’s mate position and activate the main broadcast alarms. But I never got there, and at the moment of impact was suddenly lying on the deck. It really was the most frightful crash, like your worst car accident but ten times worse – the noise, pressure wave, the sound of such a terrific explosion...”

The missile impacted amidships on the starboard side, obliquely penetrating the Auxiliary Machine Room and the resulting explosion severed the fire main and smashed machinery spaces all the way aft to the Forward Engine Room. (Note 5) A raging inferno

erupted, filling the computer room and Ops Room with thick, acrid, toxic smoke that killed most of the 20 sailors lost in the attack. Even with two frigates coming alongside, the fires could not be subdued and, by 1600hrs, as the blaze approached the Sea Dart and 4.5-in ammunition magazines, the destroyer was abandoned, a burning hulk.

Apparently the second Exocet flew past the stricken destroyer. It was detected by *Yarmouth*, which sounded the alarm, fired its “3-in chaff rockets”, and turned downwind to hide within the blossoming chaff cloud. Observers aboard nearby *Alacrity* watched the big missile fly past *Yarmouth* before its rocket motor expired and it splashed heavily into the sea.

The two SUEs were last seen by *Glamorgan* turning south at low altitude, joining to close formation and disappearing six miles away, into the haze south of *Sheffield*. Returning from their 760NM round-trip mission, “Rata” flight landed back at BAN Río Grande at 1215hrs. *Sheffield* was a total loss and the burned-out hulk later sank under tow.

Second Strike – ACL Atlantic Conveyor

The effect on Woodward, his staff, and his task group was immediate and dramatic. His “attrition strategy” was promptly discontinued and from this point on – even when TG 317.0 landed the paratroopers, commandos, and marines from San Carlos Water (SCW) on 21 May – the carrier battle group kept their distance from the disputed islands, forcing the SHARs to operate at the limits of their combat radius with only ten minutes “on station” time while manning CAPs covering the landings.

Consequently, no targeting opportunities were presented before 15 May when *Escuadra 2*’s two Neptunes finally “succumbed to old age” and developed incurable mechanical and maintenance problems that precluded continuing combat missions. Operations were attempted using ARA *Venticinco de Mayo*’s Grumman S-2Es but without success. More promising was the fact that “Radar Malvinas” – the FAA’s Westinghouse AN/TPS-43F S-band long-range air control and warning radar unit located in/near Puerto Argentino (Argentine name for Port Stanley) – began to notice patterns in the Sea Harriers’ flight tracks that indicated the probable location of the two British carriers. Using this

estimate, an attack was attempted on 23 May, but the two pilots found nothing.

Two days later TG 317.8 again approached the islands, this time from the northeast, steaming southwestwards, escorting the aircraft transport (ACL) *Atlantic Conveyor* – the requisitioned Cunard Line’s 14,950grt roll-on/roll-off container ship – to SCW. Carrying eight SHARs, six RAF Harrier GR 3s (No. 1 (F) Sqn), and a dozen helicopters, the *Atlantic Conveyor* had rendezvoused with the carrier battle group on 18 May. During the next two days the SHARs were flown off, reinforcing the carrier air groups to 25 aircraft (three SHARs had been lost in accidents and combat), and the GR 3s went to *Hermes* to support troops going ashore the following day. Once the San Carlos beachhead was firmly established, *Atlantic Conveyor* was called in to deliver equipment needed to build No. 1 Squadron’s forward operating location (FOL) and the army’s Chinook heavy lift helicopters that would facilitate a rapid advance on Puerto Argentino.

Having lost two frigates (*Antelope* and *Ardent*) sunk and had three more warships (*Glasgow*, *Antrim* and *Argonaut*) so badly damaged they were withdrawn from combat operations, Woodward’s remaining surface combatants were spread thin trying to protect the amphibious shipping from the determined and disturbingly effective Argentine air attacks. This left TG 317.8 with only the newly-arrived Type 42 destroyer *Exeter* as the sole “radar picket”, stationed 25 miles to the west, with two frigates as “goal keepers” positioned close to the two carriers. Five miles northwest was the *Atlantic Conveyor*, accompanied by LSL (landing ship, logistics) *Sir Tristram*, which were screened by *Glamorgan* to the west with the frigate *Ambuscade* as its close escort. “Radar Malvinas” soon spied indications that the carriers were 100-110NM northeast of Puerto Argentino and duly reported their estimate to BAN Río Grande.

Launching at 1428hrs, CC Roberto Curilovic (3-A-203; callsign “Tito”) led Teniente de Navío (TN or lieutenant) Julio Hector Barraza (3-A-204; callsign “Leo”) 450 miles to the north, intending to outflank the TG’s radar picket screen and attack a much more lucrative target than a destroyer – hopefully *Hermes* or *Invincible*. Meeting their “Chancha” (TC-69) an hour after take-off, the pair of SUEs “topped off” about 240 miles north of the islands and turned east,

successfully outflanking *Exeter*’s radar coverage, and approached the carriers’ estimated position from the north, descending to low-level 150 miles out. As they neared their targets – now only 60NM northeast of Puerto Argentino – their radar warning receivers (RWR) indicated emitters to port and they checked to a southeastern heading for the final run-in.

Curilovic later recounted, “We flew in electronic silence and our RWRs didn’t pick anything up, so we think they had not detected us. At 1628hrs I made the first radar sweep, confirming the presence of the targets. We continued the penetration at 500 knots and 30-meters [100-ft] and began to prepare for launch. After another radar sweep we selected the biggest target, at 39[km].” (Note 6)

Wingman Barraza continues, “At 39[km] from the target Curilovic said, “I’m tracking it,” and I replied, “Ahead, 39” and he said, “I agree.” At 1632 we fired our missiles. We didn’t have any warnings on our RWR, so we were sure of the surprise of our attack. After that we turned back and landed safely at 1830.”

Although, in fact, the attack was seen, it was too late to do anything about it. *Ambuscade*’s ESM gear detected the SUEs’ Agave transmission, bearing 338° (near starboard beam), when Curilovic and Barraza “popped up” to “take a look” and immediately broadcast the attack warning. Three minutes later the frigate detected the Exocet launch at 19NM (35km) range and the frigate immediately started firing chaff rockets and ordered a hard turn to port to hide behind the blossoming chaff clouds. (Note 7)

Lacking chaff rockets – or any other form of anti-ASM defences – *Atlantic Conveyor* also began a port turn but, at 1636hrs, after turning through 090°, it was hit in the port quarter by both Exocet missiles, leaving a jagged hole “the size of a house, extending from just above water level almost to the weather deck. Surrounding the hole were great chunks of jagged metal sticking out around the edges.” (Note 8)

The Exocets exploded on the densely-packed vehicle parking deck, immediately igniting a raging inferno that quickly spread from stem to stern, forcing the crew to abandon ship at 1715hrs. When the fierce blaze reached the 75 tons of Harrier cluster-bombs stored forward, the resulting explosion blew the bows off the ship and she foundered on 28 May, taking with her the ten remaining helicopters (Note 9), numerous vehicles, tents and field kitchens for 4,500 troops,

Harrier FOL runway and hardstand planking, the Harriers' 60-ton portable jet refueling system, and vast quantities of stores, tools, spares, and other equipment. Twelve of the ship's crew – including her Master, Captain Ian North – perished in the attack, after which, Woodward turned his carriers eastwards and steamed until – unaware that the Super Étendards were using AAR to reach their targets – they were more than 460NM from the Argentine coastline, the advertised maximum operating radius of the Dassault strike fighter, unrefuelled. The British had yet to realize that COAN jets were using FAA tankers to extend their effective range.

Despite the fact one pair of SHARs was manning a CAP west-northwest of the carrier task group – this position being widely outflanked by the SUEs' circuitous routing – and *Hermes* and *Invincible* both scrambled their "alert pairs", the attacking SUEs were never seen by the Sea Harriers. In fact, while Curilovic and Barraza were egressing northwest at low altitude and high speed, the SHARs were "held to [the] North to prevent 'Blue on Blue' [fratricide]".

After unleashing the Exocets, Curilovic and Barraza peeled off to the west, planning on landing at Puerto Deseado, but their "Chancha" remained on station, so after post-strike refuelling they landed at BAN Río Grande at 1838hrs, having completed one of the longest maritime strike missions in history – four hours and 10 minutes duration and 1,620 miles.

Third Strike – HMS *Invincible*?

With the dramatic BBC coverage of the successful strike against *Atlantic Conveyor*, which reported the container ship was hit by only one Exocet, there was considerable speculation regarding "what happened to the second Exocet?" – leading to hopeful theories within "La Lora" squadron that it may have at least damaged HMS *Hermes*, but of course, they believed, this would not have been admitted by the British media. Based on this supposition, *Invincible* now became the unit's primary target and every effort was made to locate "the remaining British carrier".

Down to only one missile remaining, it was decided to increase the possibility of "getting a hit" by augmenting the squadron's last attack with FAA Douglas A-4 Skyhawks (Note 10) that had proven so deadly, having sunk three warships to date. While successful against ships near the islands, lacking a search radar the Skyhawks could only find targets in

the open ocean if they followed something that had one – in this case they would follow the Exocet's smoke trail to their target. The addition of the A-4Cs had the added benefit of "getting eyeballs on target" to visually assess the results of the attack.

To maximize the distance from Argentine mainland air bases, TG 317.8 now operated at the SHARs' and GR 3s' maximum range with no extra fuel for deceptive flight paths – the only measure used to conceal the two carriers' location was that the pilots were required to fly at low level for 30NM before climbing to altitude for their missions. Heading to their CAP orbits, as they climbed through approximately 10,000-ft altitude the British jets appeared on "Radar Malvinas" scopes, this point being consistently plotted, revealing the general location of the task group. On the morning of 30 May – the day after five *Grupo 4 de Cazabombardeo* A-4C Skyhawks arrived at BAN Río Grande to fly the joint attack mission – this point was determined to be 162NM (300km) almost due east of Puerto Argentino.

The point the SHARs appeared on radar was typically about 10-15NM west of the task group's three picket destroyers – the Type 82 HMS *Bristol* and Type 42s *Cardiff* and *Exeter* – screening approximately 25NM east of Woodward's main body. In addition to its pickets, TG 317.8 now consisted of the two carriers, one other destroyer, five frigates, an amphibious assault ship and an RFA, with one of the frigates – HMS *Avenger* – being sent westwards to land a 24-man Special Boat Squadron (SBS) team at Volunteer Beach, just north of Puerto Argentino, that night. (Note 11)

The SUE/A-4 strike force consisted of two Super Étendards – "Ala" flight, flown by CC Alejandro Francisco (3-A-202, carrying the Exocet) and TN Luis Collavino (3-A-205, as escort and to lead the A-4s to the target in case Francisco's radar failed) – and four Skyhawks, "Zonda" flight, each carrying three Spanish-made Explosivos Alaveses (Expal) BRP-250 parachute-retarded 550-lb bombs. The A-4C section leaders were volunteers who selected their wingmen for the mission. Leading the two "Zonda" sections were Primer Teniente (1st Lieutenant or 1st Lt) José Vázquez and Ernesto Ureta; their wingmen were 1st Lts Omar Castillo and Alférez Gerardo Isaac, respectively.

Shortly after 1230hrs “Ala” flight launched from BAN Río Grande, with “Zonda” flight following five minutes later, and headed east southeast (120° heading), the A-4s joining up with the SUEs *en route* to the FAA’s two KC-130H tankers (TC-69 and TC-70). Climbing to 12,000-ft altitude in clear skies, about 50 minutes later Francisco spotted and rendezvoused with the two “Chanchas” ahead at 20,000-ft, about 250 miles south of Puerto Argentino. The SUEs joined with one tanker, the Skyhawks the other and, while they refueled, the tankers did the navigating, leading the “strike package” eastwards (100° heading) for 190 miles with all the fighters “topping off” prior to the end of the tanker track.

“Dropping off” the tankers about 300 miles southeast of Puerto Argentino – and 200 miles south of their target’s estimated position – Francisco turned the “strike package” north (heading 350°) and, descending to 100-ft (30m) above the choppy, white-capped waves, reformed the attackers into an “arrowhead formation” with the SUEs at the point and a pair of Skyhawks on each wing, “Zonda 1 and 2” on the left and “Zonda 3 and 4” on the right. The weather worsened; according to one of the surviving Skyhawk pilots, “The weather was bad, with cumulonimbus, wind and rain, and rough waves on the sea.”

Approaching the target’s estimated location at 420 knots, Francisco’s radar receiver indicated emitters to starboard, so he checked to northeast and, at 1432hrs, he and Collavino “popped up” for their Agaves to “take a look”. Breaking radio silence, Francisco read the target coordinates to Collavino who confirmed them. Unable to use the stated latitude/longitude information, Lt Ureta asked “How far?” to which Francisco replied, “20 [nautical] miles ahead” and fired his missile.

Immediately after launching the Exocet, Francisco led “Ala” flight in a hard left turn to egress and “Zonda” flight accelerated at full throttle to 489 knots to follow the missile to their target, Vázquez’s formation collapsing into a tighter “arrowhead” – less than 300-ft from one wingman to the other. In the murky, rain-swept grey air, the leaders soon lost sight of the missile but followed its wispy white smoke trail until a ship appeared before them “emitting smoke”.

Nearest the “plot point” provided by “Radar Malvinas”, Francisco had found HMS *Avenger*, which had just passed about seven miles south of

Exeter, steaming due west at fairly high speed for its assigned night-time SBS insertion mission. (At this time TG 317.8’s main body was located 30 degrees to the right [northeast] of the SUEs’/A-4s’ headings at 35NM, [beyond the Agave’s/Exocet’s range below 1,000-ft] headed northeast, into the wind to recover two Sea King HAS.5 ASW helicopters [820 NAS].) At 1431hrs, the *Exeter*’s UAA1 ESM gear detected Agave radar(s) to the south and the picket ship immediately broadcast the alarm – “Handbrake!” – on HF and UHF frequencies. One minute later *Exeter*’s Type 1022 air surveillance and target identification radar detected three “bandits” to the south, 29NM (53.7km) away, headed north at high speed, her Sea Dart’s Type 909 radar locking-on to one of them.

Exeter immediately launched two Sea Dart SAMs, one after another in quick succession, at the rapidly approaching Skyhawks. They narrowly missed a patrolling Lynx helicopter, roared over *Avenger* and, five miles south of the frigate, one of them struck Vázquez’s A-4C. Only 100-ft away, Ureta witnessed the impact, stating later, “Almost immediately [Vázquez’s] engine exploded, blowing off the rear section as it began to fall to the left. Although I didn’t see the moment that the plane hit the water, I didn’t see the pilot eject, so I think he didn’t, because we were too low.”

Responding to the “Handbrake!” alarm HMS *Avenger* immediately began turning “hard a-port”, towards the approaching threat, to present the smallest possible target – its bows – to the Exocet and began firing off 12 chaff rockets. At 1433hrs, *Avenger*’s Type 992Q air/surface search radar detected two targets (the “Zonda” two-ships were formatting so closely that each appeared as an individual target) approaching from the south at 22NM and two minutes later the frigate’s Vickers Mk 8 4.5-in cannon opened a rapid-fire “curtain barrage” of air-burst and proximity fuze fragmentation shells. Simultaneously, Captain Hugo M. White ordered the last four 3-in chaff rockets fired and began “maneuvering beneath its chaff-cloud as [everyone] suddenly realized it was – surprisingly – under attack by A-4 Skyhawks!”

Avenger’s First Officer, LCDR Tony Bolingbroke, standing on the bridge, vividly recalled, “The Skyhawks that flew in behind the missile flew directly at *Avenger* and were so low that standing on the bridge relaying a sort of commentary to the lads

below decks, I found myself almost looking down at them. So close did they pass that I could see their faces!”

Exeter had launched a third Sea Dart, apparently targeting “Zonda 2”, but it is unknown if it was this missile or *Avenger’s* 4.5-in gunfire that caused the A-4 to crash into the water, only one nautical mile from the target, the flaming debris splashing into the sea off *Avenger’s* starboard beam. “Zonda 4” – 1st Lt “Alf” Isaac – witnessed the destruction of his squadron-mate’s Skyhawk, “Focused on the target, I felt an explosion even more violent than the first one [Vázquez’s] and looking to the left I saw Castillo’s plane exploding in the air just short of the target.”

Undaunted, Ureta continued the attack, “With the target in view, I continued the approach... so when I had the “pipper” of my [gun]sight on the target I pressed the button to drop the bombs. I attacked the target from 30° astern, flying over the rear half of the ship... [Later] thinking about everything I’d seen, I determined that the ship was HMS *Invincible*, since it had a long island and a flight deck. On the final leg of my attack I saw clouds of dense smoke rising from the middle of the ship. After the attack I searched for the target and I saw smoke covering it completely. I didn’t see any ships escorting her.”

“Zonda 3 and 4’s” six BRP-250 bombs all fell wide as the two surviving A-4Cs broke hard to the left and egressed. Fully believing, and claiming, that they’d attacked the intended target – the *Avenger’s* helicopter platform giving the impression of a “flight deck” and its superstructure resembling a “long island” with the ship’s rapidly accelerating Rolls-Royce Olympus TM3 gas turbines emitting prodigious amounts of heavy smoke from the funnel amidships leading the pilots to believe the ship was on fire from being hit by the Exocet – the attack became a long-standing subject of heated controversy. (Note 12)

The Exocet was apparently “decoyed” by the *Avenger’s* chaff clouds and continued on beyond its target, splashing into the sea 7.8NM (14.5km) south of *Ambuscade* (which had locked-onto the approaching missile with its Type 912 fire-control radar). Due to the sudden shock caused by the surprising appearance of the attacking Skyhawks at such a great distance from the Argentine mainland, all attention was focused on the incoming A-4s and the Exocet missile was never seen by anyone aboard the British warships. Subsequently, it was erroneously

claimed to have been shot down by *Exeter’s* third Sea Dart and *Avenger’s* 4.5-in gun.

Aftermath

Their Exocets expended, from 31 May, 2° *Escuadrilla Aeronaval de Caza y Ataque* began training for conventional anti-ship bombing attacks, but was not operational in this role before the garrison at Puerto Argentino surrendered on 14 June 1982.

After the conflict was concluded, shipments of Super Étendards to Argentina resumed. The second batch of five, along with an unknown number of Exocets, arrived from Saint Nazaire aboard the naval transport ARA *Bahía San Blas* in November 1982. The next month final four followed aboard sister-ship ARA *Cabo de Hornos*. By April 1983 the necessary modifications to ARA *Venticinco de Mayo’s* flight deck and operating systems had been completed and 2° *Escuadrilla* began carrier qualifications.

For the next five years the squadron operated six SUEs (the rest were in storage as spares or spare part sources) alongside COAN’s surviving six A-4Q Skyhawks until the latter were retired in 1988, at which time the venerable *Venticinco de Mayo* went into refit to replace its propulsion machinery. However, this proved impractical and the ship spent most of the 1990s moored at Puerto Belgrano and was finally retired in 1997. Three SUEs were lost in accidents in 1989 and 1993 (Note 12) and, 16 years later, an agreement was signed between Argentina and France to upgrade ten of the remaining eleven. Under this programme, equipment and hardware removed from retiring French airframes was installed in the Argentine aircraft, effectively upgrading them to the Super Étendard Modernisé (SEM) standard. On 17 May 2017, Argentina purchased six ex-French Aeronaval SEMs with extensive spares, permitting the type to remain viable for the foreseeable future.

The eleventh original SUE – 3-A-202, veteran of both the successful strike on HMS *Sheffield* and the attempt against HMS *Invincible* – was retired from service and sent to Museo de Aviación Naval at BAN Comandante Espora as a tribute to the Dassault carrier strike fighter – and the pilots, ground crewmen, and Exocet weapons technicians – that contributed so immensely to the Argentine defence of the Islas Malvinas. As one British history acknowledged, “Its successes shook the Royal Navy, forcing the carriers to operate further east of the Falklands and, ultimately, to fundamentally re-examine its methods of fleet protection.”

Endnotes

1. The first five SUEs were serialised 3-A-201 through 3-A-205. The COAN serial system was Escuadra (wing number)-dash-Role (A for attack)-dash-Escuadrille (squadron) followed by two-digit individual aircraft number.
2. Aircraft 3-A-201 was left at BAN Comandante Espora as a spare parts source.
3. East of the squall line, the British warships had seven NM visibility beneath a thin 1,000-ft overcast with winds westerly at 12 knots and a light sea swell.
4. "Condor" was initially used as the TG's codeword for the Agave radar/SUE/Exocet threat.
5. Initially it was believed that the Exocet warhead failed to detonate, but MOD's June 2015 re-assessment of the loss of the *Sheffield*, done using modern damage analysis tools not available in 1982 and evidence from weapon hits and trials conducted since the end of the Falklands Campaign, concluded that the Exocet warhead did, in fact, explode inside HMS *Sheffield*.
6. Upon thorough examination of all evidence available from both sides, it is clear that Curilovic and Barraza meant 39km (approximately 21NM) instead of "39 miles" as has been previously quoted.
7. Many British sources state that the missiles were originally targeted against HMS *Ambuscade* and were lured away by the chaff, but upon emerging from the chaff cloud, "one of them" locked onto "the next big target" which was *Atlantic Conveyor*. This is inconsistent with Curilovic and Barraza's statements that one small and two large targets appeared on their Agave radar scopes. These were, in order west to east, *Ambuscade*, *Atlantic Conveyor*, and *Sir Tristram*. Both SUE pilots reported that they fired their Exocets at "the biggest target", which of course could not have been the little 3,250-ton frigate, a ship one-fifth the size of *Atlantic Conveyor*.
8. Although British media coverage attempted to minimize the Argentine success by reporting that *Atlantic Conveyor* was hit by only one of the two Exocets – and that it did not explode – the RN Board of Inquiry report, 21 July 1982, concluded that both missiles struck the ship and both detonated.
9. These were three Chinook HC 1s (RAF No. 18 Sqn), six Wessex HU 5s (848 NAS), and one Lynx HAS 2 "hot spare" (815 NAS).
10. The A-4Cs of *Grupo 4 de Cazabombardeo* were chosen over the A-4Bs of *Grupo 5 de Cazabombardeo* because their larger on-board oxygen capacity allowing them to accompany the SUEs' to the limits of their endurance.
11. These were HMS *Hermes* and *Invincible*, destroyer *Glamorgan*, frigates *Alacrity*, *Ambuscade*, *Andromeda*, *Avenger*, and *Plymouth*, LSD *Intrepid* and RFA *Regent*. *Ambuscade* and *Andromeda* were the ASW screen working about 10NM west of the TG's main body, about halfway between *Exeter* and *Invincible*; *Plymouth* and *Glamorgan* formed the TG's "close-in" escort, with the LSD and RFA a short distance to the east.
12. During their return-to-base, the SUEs and two surviving Skyhawks each rejoined with their respective tankers – the A-4Cs continuing home without refuelling – and "Ala" flight landed at 1530hrs, with "Zonda 3 and 4" following suit at 1623hrs.
13. These were 0760/3-A-210 lost on 1 August 1989 killing TF Carlos "Trueno" Manchinelli, 0762/3-A-212 on 11 December 1989, TN Félix Médiçi safely ejecting, and 0753/3-A-203 on 29 May 1993, with TN Sergio "Cutu" Márquez being killed in the accident.

Sources

1. "Board of Inquiry Report—Loss of SS *Atlantic Conveyor*", Office of the Commander-in-Chief Fleet, Northwood, UK, 21 July 1982.
2. "Board of Inquiry Report—Loss of HMS *Sheffield*", Office of the Commander-in-Chief Fleet, Northwood, UK, 28 May 1982.
3. "The May 30th 1982 Attack of the Task Force: A British View", translated by Andy Smith, first published in Spanish on the *Historia y Arqueología Marítima* website www.histarmar.com.
4. David Brown, *The Royal Navy and the Falklands War* (Annapolis, MD: Naval Institute Press, 1987).
5. Rodney A. Burden, Michael I. Draper, Douglas A. Rough, Colin R. Smith and David L. Winton, *Falklands: The Air War* (Poole, UK: Arms and Armour Press, 1986).
6. Salvador Mafé Huertas, "Super Etendard in the Falklands: 2a Escuadrilla Aeronaval de Caza y Ataque", *Wings of Fame, Vol. 8* (London: Aerospace Publishing Ltd., 1997), pp. 22-29.
7. Paul Jackson, "France's Superior Standard: The development and combat record of Dassault-Breguet's Super Etendard", *Air International*, February 1986, Vol. 30, No. 2, pages 59-69.
8. Santiago Rivas, *Wings of the Malvinas: The Argentine Air War over the Falklands* (Manchester, UK: Hikoki Publications, 2012).
9. Commander Nigel "Sharkey" Ward, *Sea Harrier over the Falklands: A Maverick at War* (Annapolis, MD: Naval Institute Press, 1992).
10. Historia de la Fuerza Aérea Argentina – Tomo VI – Volumen II; the FAA's Official History, Volume 4, Part 2.
11. Presentation by Major Alférez Isaac at the Universidad de Buenos Aires, 1997.
12. Interview of Vicecomodoro Alférez Isaac by Pablo Calcaterra at VI Brigada Aerea, 2001.



3-A-211 shows off its primary weapon – the Aérospatiale AM 39 Exocet anti-ship missile. (Martin Otero)



Members of 2° Escuadrilla Aeronaval de Caza y Ataque that deployed to BAN Río Grande pose with SUE 3-A-205, loaded with one of the five available Exocet missiles. Flight leaders of the three effective SUE/Exocet attack missions were Capitán de Corbeta Alejandro Francisco (far left), Roberto Curilovic (second from left), and César Bedacarratz (third from the right). (Juan Carlos Cicalesí Archive)



For the third SUE/Exocet attack the Argentine Air Force provided four A-4Cs – “Zonda Flight” – led by Primer Teniente José Vásquez. Each Skyhawk was armed with three parachute-retarded Excal BRP-250 (550lb) bombs. Vásquez was shot down and killed by a Sea Dart SAM from the nearby Type 42 destroyer HMS *Exeter*. (Juan Carlos Cicalesí Archive)



Even after ARA *Ventincinco de Mayo* was retired in 1997, SUE pilots attempted to maintain proficiency at carrier operations, flying off of Brazil’s *São Paulo* (A12) and visiting USN carriers. During ‘Exercise Gringo-Gaucha’, SUE 3-A-213 performs a touch-and-go aboard USS *Ronald Reagan* (CVN-76) in June 2004. (US Navy Photo)



The first SUE/Exocet attack hit the RN Type 42 destroyer HMS *Sheffield*. The missile's impact masked the detonation of its warhead, but the subsequent Board of Inquiry determined that, in fact, the Exocet warhead had exploded as designed, wreaking destruction and havoc through the destroyer's internal spaces. (Santiago Rivas)



Close up of the "kill markings" on the nose of 3-A-203. This aircraft participated in the strikes against HMS *Sheffield* and ACL *Atlantic Conveyor*. (Juan Carlos Cicalesí Archive)



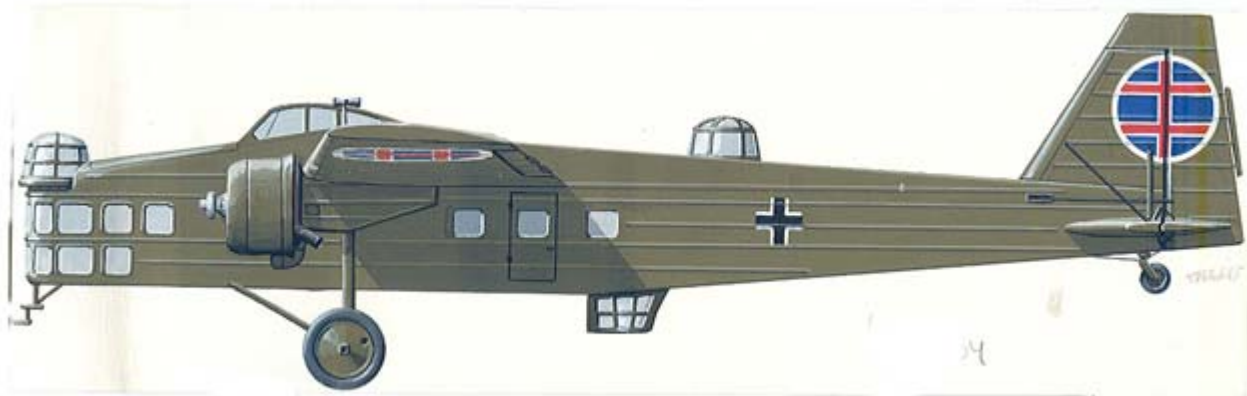
The second SUE/Exocet attack hit the aircraft transport (ACL) *Atlantic Conveyor*. The Board of Inquiry determined that both Exocet missiles hit the ship and both exploded, resulting in this burnt out hulk that was abandoned and later sank. (Juan Carlos Cicalesí Archive)



Close-up of the "kill marking" and "La Lora" squadron emblem on SUE 3-A-204. (Juan Carlos Cicalesí Archive)

Marcel Bloch MB-200 in Slovak Service

Juraj Rajninec



Designed in 1932 to fulfill a specification from the French Air Ministry for five-seat night bomber, the Marcel Bloch MB-200 was a cantilever high-wing monoplane of all-metal construction. Two Gnome-Rhone 14 Kirs/Kjra engines of 870 hp each gave it a top speed of 240 km/hr while carrying 1200 kg of bombs over a combat radius of 1000 km. The MB-200's first flight was in July of 1933 and 208 were delivered to the French Air Force. However, by September 1939, the MB-200 was considered obsolete, and the aircraft was withdrawn from front-line service by the time of the German invasion of France in May 1940. Meanwhile, in reaction to the rise of Nazi militarism in the 1930s, the Czechoslovak government sought to modernize their military forces with particular attention paid to the air force.

In spite of a vigorous indigenous aircraft industry, the Czechoslovak Air Force traditionally obtained its bombing aircraft through license production. To replace the ageing Avia-built Fokker F-IX heavy bombers, the ministry of National Defense obtained a license to build the Marcel Bloch MB-200.

A single aircraft was delivered from France in May 1935. During 1936 and 1937, a total of 114 MB-200 were built in Czechoslovakia: 70 by Avia, the main license holder, and 44 by Aero under a subcontracting agreement. The MB-200 were fitted with NACA engine cowlings instead of the Townend rings of the French version. It was powered by two Czechoslovak Walter RK-14 engines of 750 hp each resulting in a maximum speed of 245 km/hr. Three Mk 30 guns were fitted and up to 1200 kg of bombs could be carried.

Because the Walter RK-14 engines were much less powerful than the Gnome-Rhones they replaced, the Czechoslovak MB-200 were grossly underpowered and tended to spin if one engine failed. For this reason, the Czechoslovak pilots nicknamed the MB-200 the "Flying Coffin".

One of the Avia-built MB-200, c/n 12, was serving with the Czechoslovakia 5th Air Regiment at

Brno when it was damaged on the airfield near Malacky in Slovak territory during a Czechoslovak Army exercise. Before this aircraft could be recovered and repaired, the Czechoslovakia Republic was dissolved and the aircraft became the property of the new Slovak nation. In 1939, the damaged aircraft was transported from Malacky to Nitra where it was repaired and made airworthy. The aircraft was then flown from Nitra to Piestany where it served with the Slovak Air Force's "Training Squadron".

In 1940, the "Training Squadron" was reorganized as the "Flying School" and it was transferred from Piestany to Trenčín. The lone Slovak Air Force MB-200 went along to Trenčín, but it saw no further service, and in 1943 it was transported to scrap.

In Czechoslovak and Slovak service, the MB-200 carried the standard color scheme of khaki upper surfaces and silver lower surfaces. No code letters or numbers were carried by the aircraft while in Slovak service. It did carry the early Slovak State insignia consisting of the red Slovak cross outlined in white on a blue disc on the rudder and in four positions on the wings.

Juraj Rajninec†, Slovakia.

The LVA 1918

Part 1

Frits Gerdessen

During 1918, the LVA's aircraft inventory was nearly tripled, but pilot strength did not keep pace. The main reason was the fuel shortage. Fuel was primarily used for training. The LVA received 75 new aircraft and some dozens of repairable interned aircraft, but the technical branch was unable to handle this load.

The year in Review

The LVA started the year 1918 with 19 pilots (including 1 NCO), and ended the year with 32 pilots (7 NCO's) and 31 student pilots. By 1 November 1918, the LVA had 81 officers, 584 NCOs and other ranks, and 2 civilians. With the demobilization after the end of the war, these number was considerably reduced.

Construction of new buildings and the extension of existing buildings continued throughout the year: barracks, workshops, photo section, radio, hospital, a new staff building, etc. Also a railway connection was started and a radio mast erected.

The Kemperheide detachment was retired, probably after Lt. van Weerden Poelman crashed Farman LA4 on 7 May. The Vlissingen detachment also was retired; Lt. Wallast had hardly flown the last months being busy with internings. Thus, Lt. Versteegh flew Farman HF801 (ex LA37) to Soesterberg arriving on 20 September. Lt. Wallast returned to Soesterberg on 26 October.

This year there were several accidents, the most serious on 1 November when Caudron C427 and Farman HF19 collided head-on over Soesterberg. All four crew were killed. This crash was witnessed by 30 newly arrived student pilots, several of whom departed at once.

Another serious loss was Photo Service commander Lt. R.I.M. Meltzer, who on 1 July collided with a train with his motorcycle and was killed.

Lt. A. Coblijn's flying career was ended on 4 October while training on Rumpler C.VIII R418. The plane hit a mast, crashed and was w/o. The instructor Lt. Duinker was slightly injured, but Coblijn suffered multiple leg fractures. He spent a long time in the hospital and was unfit for further military service. (Note 1)

The LVA had a serious setback when Gen. C.J. Snijders, a staunch supporter of the LVA, was

discharged on 9 November. He had indicated that his forces would not be able to defend the country; a comment that was not appreciated by the government. Further complications in October-November led to his honorable discharge.

In November, the Germans were retiring and the front had reached the Dutch border of Zeeland requiring the strengthening of the Dutch army there. However, parts of the army revolted and Snijders was blamed and he was honorably dicrarged. His successor was Lt. gen. W.F. Pop who had little if none interest in aviation.

On the 11th hour of the 11th day November 1918 the war ended and the army command started the planned demobilization immediately. Speed was necessary, not only to curb unrest, but because of the spread of the Spanish flue. This disease had struck quite mildly in the summer, but returned in the fall in a deadly version that killed some 28,000 Dutchmen up to 1920.

On the 11th, the C.LVA was informed that a partial demobilization would start beginning with the class of 1916. On the 14th, he addressed departing soldiers. That same day, an order was received to ground all the Rumplers. A "reliable source" had given an anonymous message to an MP about a eminent Bolshevik plot. The MP passed this message to the MvO who ordered the grounding of all Rumplers. The C.LVA protested, and the order was withdrawn on 18 November.

The demobilization resulted in personnel shortages and the C.LVA asked for replacements but in vain.

On 1 July, an engineer was posted to the LVA, to replace Lt. Labouchère. His replacement was 2nd Lt. ir. Bruno Stephan w.i. (w.i. = werktuigbouwkundig ingenieur = mechanical engineer). Stephan (1887-1966) had graduated from the Technical University. In 1914, he became officers of special services for Trompenburg (Note 2). He was posted with the

Motordienst, but continued as a teacher at the Technical University as a specialist on combustion engines. In 1919, he succeeded ing. Vreeburg as Chef TD. Lt. Labouchère, who had been sent to France in 1915, arrived on 1 May at Soesterberg and retired on 13 July.

The fuel shortage made also an end to meteo flying. Also the KNMI's operations with kites and balloons were curtailed due to shortage of wire and gas. The flights were resumed in May 1919.

Yet on 21 November sgt. maj. Van der Drift climbed to 6100 m a Nieuport 23. As no sports committee was present, this record was not official.

Thulin

The Thulin LA production for the MLD was completed in February 1918. Palle Mellblom, head of the carpentry shop, noted on the 15th that a load test had been done and on the 20th that the work on his part was completed. On the 18th, Lt. Nils Kindberg made the test flights. The planes were quickly shipped and were in use by April 1918. They received serials C1/10 but like the K's not all were flown and at least one had its wings of fabric for use as taxiing trainer.

Thulin A delivery (303) was completed mid-1919 and 295 motors are known. The engines were test-run in Sweden for which the LVA supplied castor oil. The 110 hp Thulin G rotary was initially rejected because of insufficient power, but in 1919 40 were delivered and they were used in 1922 for the Fokker S.II trainer.

Trompenburg-Nieuport

The Nieuport production by Trompenburg was delayed by various shortages, but the first two arrived at Soesterberg on 30 January. Up to 11 March 12 arrived, all incomplete (no wheels and tail skid). When the delivery was completed is not recorded, but they were paid for still in 1918. They were stored and not used before late 1920. Then they were of no use as all new (Fokker) aircraft had in-line engines. Only a few were flown.

The model Nieuport, initially serialised LA40 but in 1918 N213, was returned in 1918.

Trompenburg applied serials from NSP214 on, at least to NSP227, but as the LVA had already given these serials to the French Nieuports 21 and 23 and interned fighter planes, the batch was reserialised NSP230/249 before October 1918. Part of the

wrongly serialised (non-used) Nieuports were reserialised with chalk.

Trompenburg

The plans to expand the LVA lead to the development of three Trompenburg types, the V.2 trainer, V.3 fighter, and V.4 recce plane.

The V.2 arrived on 5 April at Soesterberg and was test flown on the 9th. The plane gave a good impression and required few modifications. However, production was delayed, and delivery did not start until October 1918 - 58 for the LVA, 18 for the MLD, and 2 for NEI. The latter were transferred to the MLD. The type was known as "Spijker" (type letters SP) after the original name of the Trompenburg factory.

During the V.2's tests, MLD pilots considered it much better than the newly arrived Thulin LA, which in their opinion were only suitable as firewood. (Note 3) The first naval V.2 (C12) first flew on 24 October. The LVA received its first one on 29 October. Lt. Versteegh made the first test flight on 19 November. The deliveries were completed in November 1919. Serials were SP26/83 for the LVA and C11/30 for the MLD. C29/30 were taken over from the NEI contract.

For the V.3 and V.4, 130 hp rotaries were needed, but it was impossible to obtain them from abroad. Trompenburg offered to produce the rotaries using an interned Clerget as a pattern. On 19/21 March, director Wijnmalen and Munitiebureau director Prof. van Royen signed a contract for 200.

The first of three sample motors was tested, in mid-March giving 5% more power than the pattern engine. The production of the 200 was completed in mid 1919, but by then they were of no use as the aircraft they were intended for had been cancelled. Thus only a few copy Clergets were used, e.g. in Fokker aircraft. The remainder ended as scrap.

The C.LVA felt uneasy about being dependent on Trompenburg, whose output has proved to be far from satisfactory. In April 1918, he considered it impossible that Trompenburg within a year could deliver 184 combat aircraft for the LVA, 25 for the MLD, and 20 for NEI. He therefore suggested that the Munitiebureau order the recce aircraft from Werkspoor, a waggon factory at Utrecht. On 18 February, Sopwith 1½Strutter S412 had been delivered to Trompenburg as a pattern aircraft, but nothing had yet been done with it.

The contract for 98 V.3 and 118 V.4 (Note 4) was at last signed on 15 October 1918. This was impossible any earlier since Trompenburg lacked raw materials that had to be supplied by the Munitiebureau.

The end of the war changed everything. In 1919 only one V.3 was completed and the V.4 remained a project. A drawing of this type appeared in Jane's in 1919.

Aircraft from France

The delivery of French aircraft was much delayed. The government had leased the Norwegian SS *Rhea* to bring various cargo from Spain, and the Nieuports and Caudrons were loaded at Vigo. After that it all went wrong. The Royal Navy seized the *Rhea* and other ships. Lt. J. Labouchère, who returned to Holland from France on 1 May, had met members of *Rhea's* crew in London. They didn't know what had happened to the ship (it was later torpedoed). The cargo was apparently released and the crates arrived at Soesterberg on 24 June.

The planes had hardly suffered from the long voyage. By this time, the Caudron G.4 was fully obsolete, but both Nieuport types (21 and 23) were still modern enough. On 30 July one Caudron (C427) and one Nieuport 23 (most likely N220) were test flown. The Nieuport were quite satisfactory, and N220 was soon tested with armament. No more Caudrons were assembled but most likely all Nieuports were assembled. A number of pilots qualified on these types. The Nieuport 23 were later used for meteo duties.

The Nieuport 21's were serialised N215/219, the 23's N220/224. The Caudrons were C427/431.

Some pilots trained on the C427 until the plane was lost after colliding with a Farman HF19 on 1 November. Assembly of another Caudron was started, but abandoned as the war was over. The Caudrons were no more heard of.

Early in 1918, more aircraft from France might be purchased. On 4 January, the Dutch ambassador in Paris wired that Lt. Labouchère could buy at once 10 or more 1½Strutters with 120 hp Le Rhône or 130 hp Clerget, at favourable prices: Fr. 33.000 per aircraft and Fr. 12.000 per engine. These were intended for Russia but the revolution there prevented delivery.

The offer was passed to the Munitiebureau, which advised the OLZ to reject. The 1½Strutter ordered a

year earlier had not yet arrived, and it was feared that this delay might be repeated. In addition, the 1½Strutter had been withdrawn from the Western Front.

Rumpler C.VIII (Note 5)

After some bickering over the deliveries, including 5000 horses, 8 Ru C.VIII were accepted in April and arrived at Soesterberg on 25 April. Nineteen more arrived at Soesterberg on 21 August. The last 13, arriving on 25 September, were temporarily stored at Schiphol as there was no room at Soesterberg.

The Ru C.VIII soon caused mixed feelings. Many LVA pilots had problems with handling the type, which differed a lot from the Farman trainers. They always had to be flown with ballast in the rear cockpit, an observer or sandbags (quite usual in Germany). (Note 6) The ground crews had to get used to more extensive and careful servicing.

The Ru C.VIII, though not a bad airplane, had some built-in vices. For example, the copper fuel pipes were brittle and prone to breaking. The engine was the 180 hp Argus As III, of less quality than the superb Mercedes, BMW, and Benz engines. The carburetor was not of top quality (Note 7) and was located where there was a risk of fire once a fuel pipe broke.

In 1917, the German *Fliegertruppe* had concluded that obsolete 2-seaters were inadequate for thorough training in dangerous job of operational trainer for army co-operation over the trenches. What was needed was an aircraft with the same performance as the operational types, but with a lesser quality engine. The Rumpler C.VIII had been designed to fit this need.

The C.VIII's were from *Fliegertruppe* production series, and thus built under the strict German *Bauaufsicht* (supervision). By this time, the German industry had to revert to lesser quality materials, but the specifications were adapted so that the required strength requirements were upheld.

The Dutch Rumpler C.VIII was soon in use, but by the time the second batch arrived, already 4 (out of 8) had been w/o. The first batch was serialised R417/424, the remainder R447/478 or R448/479. The last 13 were initially stored at Schiphol.

Dutch aircraft production

Van Berkel's Patent in Rotterdam, producer of weighing and meat cutting apparatus, became interested in aircraft production. (Note 8) Therefore, the Hispano of SE.5A SE214 (B4885, interned #50 on 6 January 1918) was delivered there with license production in mind. Nothing became of this. However, on 15 November 1918, 35 Hansa Brandenburg seaplanes were ordered as the Van Berkel WA, a slightly modified W.12. Instead of the Hispano engine of the W.12, the 160 hp Mercedes was used, which was readily available in Germany once the war was over. Delivery of Van Berkel WA started in October 1919..

The firm of Goedkoop, in Amsterdam, was also interested in aviation and in August 1918 it received SPAD S.VII SPA210 (interned #45 on 18 November 1917) as a sample. Goedkoop delivered one copy SPAD in October 1920, but that plane was considered unsafe to be flown and written off by the LVA.

Aviation Study Section

During the war it became clear that scientific approach to aviation was of vital need. The KNVvL (Aero Club) already had a laboratory in the Technical University at Delft, but more was needed. On 15 April 1918, the Studie-Afdeling van de Luchtvaartdienst (Aviation Study Section) was founded, led by dr.ir. E.B. Wolff. This Section was at once very active. Already in April, a report on the interned Halberstadt CL.II was made. Later more (interned) LVA and MLD aircraft were inspected. On 23 September, a DH.9 wing set was test loaded at Soesterberg, most likely from D2781. (Note 9) Climb tests were made with an 1½Strutter.

Aircraft inventory

Only a few inventory lists for 1918 have been preserved. On 1 March, the LVA had 52 aircraft and on 1 July it had 86 aircraft. By then, 15 had arrived from France, 8 from Germany, and a number interned.

An inventory of October mentions the available aircraft and the expected Trompenburg deliveries:

42 fighters: 10 Fokker D.III, 1 Sopwith Pup, 1 Nieuport XI, 5 Nieuport 21, 5 Nieuport 23, 20 Trompenburg-Nieuport. With 72 V.3 on order, the total come to 114.

42 recon a/c: 1 Sopwith 1½Strutter, 36 Rumpler C.VIII, and 5 Caudron G.4. With 112 V.4 on order

the total is 154. Four C.VIII were already w/o, but not their engines.

17 trainers: 1 REP, 13 Farman, 2 Avro 504, and 1 Morane. With 56 V.2 on order. the total is 73 (in fact 58 V.2 were ordered).

In addition there was one bomber: Sopwith-Hanriot S701.

This list mentions also the available and ordered engines. In case of the Thulins 4 per aircraft were required: 1 in the plane, 1 as immediate reserve, 1 in overhaul, and 1 for spares.

Considering the known serials, the LVA had 150 aircraft on charge at the end of 1918. Of the interned aircraft, several were due for repair and others just unusable (Handley Page O/400 and Friedrichshafen G.III were too large).

Jablonsky and the AVIA two-seater (Note 10)

Ing. Bruno Jablonsky (*27 Aug. 1892) obtained on 28 September 1910 German DVL license No. 30, and thus became the youngest German pilot at that time and at least until 1912. He learned flying on a Wright biplane at Johannisthal near Berlin, the centre of German aviation, and thus came to know "everybody" in German aviation, including. Anthony Fokker and ir. John Rozendaal. He had a hangar at Johannisthal in which Fokker rented a part.

Jablonsky joined Rumpler as a test pilot and then became director of the Garuda propeller works. In 1912 he went to England as representative for Garuda (propellers), Argus (aero engines), and Albatros (aircraft). He took an Albatros biplane with him.

In August 1914, Jablonsky was in the wrong place at the wrong time, and was interned in England. Most likely his Albatros B.II ended up with the RNAS with serial 890.

Late in 1917, Jablonsky was exchanged and interned in Holland where he would remain until 1925 when he return to England.

In Holland, Jablonsky wasted no time to contact aviation authorities, among them the C.LVA who introduced him to Munitiebureau director Prof. van Roijen. Jablonsky soon acted as consultant and was encouraged to offer a two-seat biplane of his own design. With support by the Munitiebureau and others, Jablonsky started AVIA in Rotterdam. He engaged some interned Germans as work force. The LVA

loaned him an Argus engine and a Rumpler C.VIII gun ring and radiator. By the end of the war, the AVIA biplane was as good as ready, but was no more needed and therefore offered as mailplane. It was exhibited in Rotterdam but never flew. Early in 1919, RSL engineer ir. B. Grasé inspected the plane and wrote RSL report nr. V.3. He considered the type not very modern and not presenting something new. By this time, the plane was owned by Burgerhout's Shipyard in Rotterdam, and test loaded there on 20 March 1919. The wings broke with load factor 5, whereas 6 was required.

With the war over, Jablonsky went abroad to obtain engines for the WA. In Berlin he visited the *Reichsverwertungsamt* (Note 11) and managed to obtain a number of Mercedes engines. There he also met his old pal Fokker whom he informed about the situation in Holland. Fokker was in a somber mood as the German aviation industry had collapsed and his privately-owned factory thus was in great danger. On his return to Rotterdam he met Fokker on a train on the way to Den Haag. Apparently Fokker had something in mind to save his business.

Serial system

The change of serials on the LA-serialled aircraft took some time. Photos show LA37 in March and LA4 in April. There is also uncertainty about serials of interned aircraft: 226-227, 439-446 (447), and 480 (479)-482. No documents remain and in the second half of 1918 very few aircraft were photographed.

226 and 227 must be the intact interned Fokker D.VII and the Sopwith Camel that needed repairs. But which is which cannot be proved. 228 and 229 were later attributed to Fokker D.VII's, but that is most unlikely as 230-249 were issued before 226 and 227 were interned.

Apparently serials were given to interned aircraft which were in good shape and/or easily reparable.

Operational strength November 1918

On 13 December 1918, the OLZ asked how many combat ready aircraft the LVA had available on 1 November. GS answered on 30 December:

	Ready	Repair	Total
Airco DH.4	1	-	1
Airco DH.9	3	5	8
Bristol F.2B	1		1
DFW C.V	4	3	7
Fokker D.VII	1		1
Halberstadt CL.II	2		2
Hannover CL.II	1		1
LVG C.VI	1		1
Sopwith Camel		1	1
	14	9	23

Thus, only interned aircraft were available, just sufficient for two 6-plane units. In store were ca. 6800 German and ca. 14000 British rounds of ammunition.

Frits Gerdessen (#12) Netherlands.

Notes

1. A. Coblijn was honourably discharged in 1922 and promoted ritmeester (cavalry captain). He returned to France (he was born in Paris). In June 1940 he volunteered for the French Red Cross and was posted to Bordeaux. Driving there with his mother, he crashed his car on 23 June. His mother was killed at once, he died the 25th.
2. In 1907, he was sent to Russia with spares and tools to assist the Trompenburg's driver (Godard) in the Peking-Paris race. In 1925, he joined Fokker as deputy director, and in 1935 he moved to Turkey as government advisor until 1950.
3. An LA was the only Thulin to carry the red-white-blue roundel, when it was donated to an Amsterdam museum in 1922.
4. LVA: 72 V.3, 112 V.4. MLD: 20 V.3. NEI 6 V.3 & 6 V.4.
- 5.. The Rumpler C.VIII was dealt with in SAFO #136.
6. This applied to all German two seaters, but apparently the (interned) German types in use before the Rumpler C.VIII had not given any problems.
7. The Fliegertruppe also was plagued by this trouble (and the brittle copper pipes), which resulted in a row with the factory Zenith.
8. During the war Van Berkel also produced high quality equipment for the defense industry and was highly regarded by the Munitiebureau.
9. Interning #65, 25th July 1918. The plane could not be repaired but the wings were intact.
10. Information about Jablonsky is from his biography, which is not too clear and mentions no dates.
11. The *Reichsverwertungsamt* was a bureau, founded after the Armistice, tasked to sell the now superfluous armament, equipment, etc.



Farman HF.20 LA4 at army camp Harskamp, 26 April 1918. It still carries the LA serial.



Nieuport 23 N220 was flown with a gun on the top wing; on 7 August 1918.



The first Trompenburg-Nieuport fighter, NSP214, in February 1918.



Caudron G.4 C427 was test flown on 30 July 1918. No other Caudrons were assembled.

Photos continue on pages 74 and 107

All photos via the author

Aircraft Supplied to China through Lend-Lease during World War Two

W. Yip



Lend-lease AT-6D in Chinese Air Force Markings.
(Courtesy of San Diego Air & Space Museum)

Following the passage of the Lend-Lease Act by the United States Congress, China was declared eligible for Lend-Lease Aid on May 6, 1941. A Lend-Lease Master Agreement was entered into with China on June 2, 1942 and lend-lease equipment started to flow into China. According to United States (U.S.) Government document (Ref. 5), the following types and quantities of military training aircraft, were supplied to China under lend-lease.

Advanced Trainer	Number
AT-6(D)	20
AT-7	8
AT-17	15
Subtotal	43
Primary Trainer	
PT-17	150
PT-19	127
PT-22	70
Subtotal	347
Basic Trainer	
BT-13(A)	30
Grand total	420

However, further investigation into United States Army Air Corps/Air Forces (USAAC/USAAF) records reveals that the quantities listed in the table above did not reflect the actual quantities of these aircraft transferred to China. China received far less lend-lease training aircraft than U.S. official source had stated.

In January 1943, the Chinese Flight Training School (CFTS) was setup in Walton field in Lahore, India (now Pakistan) where Chinese pilots were trained by USAAF personnel. So, the bulk of these lend-lease training aircraft ended up in Lahore instead of China. At Lahore, some of these aircraft were reverted back to USAAF control. When the CFTS was closed in November 1945, among those under the control of USAAF, only some were released back to China. The rest were either sold to the Government of India or off-charged due to accidents or normal wear and tear. In this article, the following 4 types of lend-lease trainer supplied to China are described:

- Beech AT-7
- North American Aviation AT-6D
- Vultee BT-13A
- Ryan PT-22

Beech AT-7

In late 1940, USAAC ordered the twin engine Beech Model C18S as advanced trainer to train student navigators. This advanced trainer was designated AT-7 and delivery to the USAAC began in February 1941. Externally, the AT-7 looks identical to the C-45 except that it has a rotatable astrodome just behind the cockpit for sextant readings. Through lend-lease, China Nationalist Government received 8 AT-7s and they were delivered to China between September of 1942 and March of 1943. These aircraft were brand new from the factory and not ex USAAC machines. According to Reference 1, these aircraft were delivered to the CFTS in India in anticipation of the formation of the Chinese-American Composite Wing (CACW) which was activated in October 1943. They must have been used to train Chinese student navigators destined for the medium bomber group of the CACW. There was no record about the return of these lend-lease AT-7s to the U.S. after the war.

42-2505	3/43
42-2506	3/43
42-2507	3/43

Note: The lend-lease AT-7s were not China's first encounter with the Beech Model 18. In late 1939, China Nationalist Government negotiated with Beech to purchase six Model 18Rs as bomber trainer and a contract was awarded in February 1940. These aircraft were delivered to China between September and November of 1940. Photos show that these aircraft were delivered in olive green paint theme on the upper surface and white paint on the under surface with blue and white fin strip. The Model 18Rs can be distinguished from the AT-7s supplied under lend-lease in not having the rotatable astrodome immediately behind the cockpit. Instead, the Model 18R supplied to China had a clear plastic nose, a single gun turret on the upper fuselage, a machine gun located in a tunnel in the rear floor, and bomb racks that could carry up to twenty 25 lb. bombs internally.

USAAF serials	Delivered
42-2415	9/42
42-2416	9/42
42-2464	1/43
42-2503	1/43
42-2504	3/43

c/n	# built	Remarks
18R-375/380	(6)	18R-375 was reg. NX25474 when tested in U.S.

North American Aviation (NAA) AT-6D

The AT-6 was originated from an earlier training aircraft designated BC-1A under the "Basic Combat" trainer category created in 1936. It was based on North American Aviation's Model NA-16 proposed to USAAC for its basic trainer requirement. The purpose of the Basic Combat trainer was to have an advanced type of training aircraft having flying characteristics similar to the high performance tactical airplanes in operation with USAAC. When the Basic Combat category was eliminated in 1940, the Army resurrected the "AT-Advanced Trainer" category which was discontinued in 1929. The BC-1As produced after the Basic Combat category was eliminated were redesignated AT-6s.

The AT-6 was procured in large number by the USAAC during World War Two and many were supplied to U.S. Allies. Noorduyin in Canada was allowed license production of the aircraft for Britain and Canada. Those produced by Noorduyin in Canada were designated AT-16 and were named Harvard.

Under Requisition CH-42, 20 AT-6Ds (USAAF serials 42-85653 thru 85672) were assigned to China

under lend-lease. These aircraft left U.S. in October 1944 and arrived at India in early 1945. However, they were all diverted back to USAAF in "DAUB" on May 2, 1945. During World War Two, various air fields in the U.S. and overseas were assigned code names and these code names were used in the USAAC/USAAF records instead of their real names. "DAUB" was the code name assigned to the allied airfield in Lahore, India. Eventually one AT-6D was released to China on May 23, 1945 and one to COAA on December 9, 1945. 12 were sold to the Government of India on April 10, 1946 and the rest were off-charged due to accidents (condemned) or wear and tear (investment lost). COAA is the acronym for "Commission On Aeronautical Affairs", a China Nationalist Government committee responsible for procurement, maintenance, instructions, and administration of aviation matters in China. So, out of the 20 AT-6Ds assigned to China through lend-lease, only two were actually released to China. USAAC/USAAF records also did not show that these 2 AT-6Ds were ever returned to the U.S.

USAAF serials	Remarks
42-85653	taken bk at Daub 2/3/45, sold to Govt of India 4/10/46
42-85654	taken bk at Daub 2/3/45, sold to Govt of India 4/10/46
42-85655	taken bk at Daub 2/3/45, sold to Govt of India 4/10/46
42-85656	taken bk at Daub 2/3/45, sold to Govt of India 4/10/46
42-85657	taken bk at Daub 2/3/45, condemned/salvaged 5/3/45
42-85658	taken bk at Daub 2/3/45, released to COAA in 12/9/45
42-85659	taken bk at Daub 2/3/45, sold to Govt of India 4/10/46
42-85660	taken bk at Daub 2/3/45, sold to Govt of India 4/10/46
42-85661	taken bk at Daub 2/3/45, sold to Govt of India 4/10/46
42-85662	taken bk at Daub 2/3/45, crashed at Daub on 3/10/45
42-85663	taken bk at Daub 2/3/45, released to China on 5/23/45 but taken bk again on the same date.
42-85664	taken bk at Daub 2/3/45, crashed landing at Daub on 3/19/45, off-charge
42-85665	taken bk at Daub 2/3/45, sold to Govt of India 4/10/46
42-85666	taken bk at Daub 2/3/45, investment lost in 8/1946
42-85667	taken bk at Daub 2/3/45, sold to Govt of India 4/10/46
42-85668	taken bk at Daub 2/3/45, released bk to China on 5/23/45
42-85669	taken bk at Daub 2/5/45, sold to Govt of India 4/10/46
42-85670	taken bk at Daub 2/5/45, sold to Govt of India 4/10/46
42-85671	taken bk at Daub 2/5/45, sold to Govt of India 4/10/46
42-85672	taken bk at Daub 2/3/45, investment lost in 8/1946

This was not the first time China operated the NAA's NA-16. Prior to World War Two, China had obtained 100 NA-16s of different variants through direct purchase. They were armed version and were used as both trainer and attack aircraft. On February 23, 1938, China Nationalist Government placed an order for 35 aircraft and they were designated NA-16-4. They were armed with two synchronized 0.30 calibre machine guns firing forward and a flexible mounted 0.30 calibre machine gun mounted aft. NAA charge number was NA-41. They were similar to BT-9C with Wright Whirlwind engine and fixed landing gears. Since, they were direct purchase and not ex-USAAC machines, no USAAC serials were assigned.

C/n	# built	Remarks
41-697/731	(35)	NA-16-4 (charge # NA-41), Wright R-975-E3 engine, fixed landing gears, antenna wire post in front of cockpit, and rounded rudder.

On the same date, China Nationalist Government placed another order for 15 two-seat light bomber variants designated NA-16-3C and the NAA charge number was NA-48. They were similar to BC-1 (NA-36) with retractable landing gears and powered by a Pratt & Whitney (P&W) R-1340 radial engine.

C/n	# built	Remarks
48-732/746	(15)	NA-16-3C (charge #NA-48), P &W R-1340(S3H1) engine, retractable landing gears, antenna wire post in front of cockpit, and rounded rudder.

Between late 1938 and early 1939, a proposal to China on a single seat fighter based on the NA-16 design was made by NAA but for unknown reason, none was procured.

c/n	# built	Remarks
N/A	(0)	NA-16-5 (charge # NA-53) Proposed single seat fighter for China based on the NA-16 design.

On April 18, 1939, China Nationalist Government placed a third order with NAA for 50 more NA-16-4 trainer. They received NAA charge number NA-56. They were similar to BC-1A (NA-55) with fixed landing gear and powered by a Pratt & Whitney R-1340 engine.

c/n	# built	Remarks
56-1453/1502	(50)	NA-16-4 (charge #NA-56), P& W R-1340(S3H1) engine,

fixed landing gears, no antenna wire post, and triangular rudder.

In all, 100 NA-16s were supplied to China through direct purchase before World War Two.

According to Reference 8, in 1951, the China Nationalist Government, now exiled in Taiwan, purchased 12 exT-6Ds (upgraded by NAA) through a private agency in the U.S. to fill the need of training military pilots. The author has seen a total of 27 upgraded T-6s parked in formation in a photo taken during an inspection ceremony in Taiwan. Therefore, it is likely that at least 27 of the upgraded T-6s and not 12 were supplied to Taiwan after World War

Two. Reference 10 states that 170 were purchased and these aircraft were designated by the China Nationalist Government as AT-16. These upgraded T-6s can be distinguished from the AT-6Ds supplied under lend-lease by a teardrop shape attachment located behind the cockpit which houses the radio compass loop antenna and the lack of wire post in front of the cockpit. Taiwan had to purchase military aircraft to build up its defense during that time period because the United States did not include Taiwan as part of the containment strategy to counter the communist expansion until 1953-1954 when massive number of military aircraft began to flow to Taiwan under the Mutual Defense Assistance Program.

Vultee BT-13A

Between the twenties and the forties, flight training of the USAAC aircrew went through three phases, namely, the “primary” flight training, then the “basic” flight training, and finally the “advanced” flight training. Specific types of training aircraft were procured for each phase of the flight training. So, training aircraft procured for primary flight training were designated “PT-Primary Trainer”. Those procured for basic flight training and advanced flight training were designated “BT-Basic Trainer” and “AT-Advanced Trainer” respectively. The Vultee’s single engine low wing BT-13 was procured for basic flight training and was essentially the only type of trainer in massive production for the USAAC during World War Two for “basic” flight training. (One may argue that the Vultee BT-15s were also produced in large number too. However, BT-15 was essentially a BT-13 but powered by a Wright R-975-11 engine instead of a Pratt & Whitney R-985-AN-1 engine. During that time period, a change in aircraft engine type, in this case, from a Pratt & Whitney engine to a Wright engine, would require a change in the aircraft designation. The main reason why the BT-15s were built was because Pratt & Whitney could not keep up with the production of the R-985-AN radial engines and USAAC decided to installed the Wright R-975 engine in the production BT-13s which became the BT-15s.)

According to Reference 4, 30 BT-13As were approved for lend-lease transfer to China in July

1944. However, the author can only identify from USAAC/USAAF records that only 16 BT-13As were assigned to China under lend-lease Requisition CH-43. These BT-13As were ex USAAF machines and shipped from Newark, New Jersey in August 1944. They arrived in India in early 1945. Similar to lend-lease AT-6Ds supplied to China as described earlier in this article, these BT-13As were also diverted back to USAAF control in “DAUB” on February 5, 1945. Reference 11 reported that these lend-lease BT-13As were mainly used for night flight training or instrument flight training. USAAC/USAAF records show that only five of these lend-lease BT-13As were eventually released to China in December 1945. Most others were off-charged due to accidents (condemned) or wear and tear (investment lost). Three were sold to the Government of India in April 1946. One of the five BT-13As released to China was identified from USAAC/USAAF record to have been transferred to COAA (Commission on Aeronautical Affairs) of China. A Photo in Reference 11 shows one BT-13A in China National Aviation Corporation (CNAC) markings which is a Chinese character representing the first character of the company’s name in a circular blue background. The author believes that this must have been the BT-13A transferred to COAA on December 9, 1945 which was passed onto CNAC probably for the airline pilot training.

USAAF serials	Remarks
41-10441	taken bk at Daub 2/5/45, Condemned/ Salvaged
41-10477	taken bk at Daub 2/5/45, sold to Govt of India 4/10/46
41-10966	taken bk at Daub 2/5/45, released to China 12/29/45
41-10967	taken bk at Daub 2/5/45, sold to Govt of India 4/10/46
41-11121	taken bk at Daub 2/5/45, released to China 12/29/45
41-22942	taken bk at Daub 2/5/45, sold to Govt of India 4/10/46
42-42721	taken bk at Daub 2/5/45, Condemned/ Salvaged
42-42722	taken bk at Daub 2/5/45, released to China 12/29/45
42-88680	taken bk at Daub 2/5/45, Condemned/ Salvaged.
42-88868	taken bk at Daub 2/5/45, Condemned/ Salvaged.
42-88890	taken bk at Daub 2/5/45, released to China 12/29/45
42-88934	taken bk at Daub 2/5/45, Condemned/ Salvaged.
42-89023	taken bk at Daub 2/5/45, Condemned/ Salvaged.
42-89087	taken bk at Daub 2/5/45, to COAA 12/9/45
42-89124	taken bk at Daub 2/5/45, Condemned/ Salvaged
42-89127	taken bk at Daub 2/5/45, Condemned/ Salvaged.

Ryan PT-22

The PT-22 low-wing monoplane was derived from Ryan's ST (Sport Trainer) intended for civilian flying school. In 1939, a ST-A was evaluated by USAAC which led to the procurement of a relatively small number as primary trainer and received USAAC designation YPT-16. This led to the progressive development of the PT-20, PT-21, and eventually the PT-22 which USAAC ordered the greatest numbers. PT-22 was powered by a Kinner R-540 radial engine and 1023 were built. There were only two lend-lease recipients of this type of training aircraft: China and Ecuador. PT-22s were also ordered by the Government of the Netherlands East Indies but the fall of Java to Japan in May 1942, led to the incorporation of these 25 planes into USAAC inventory and they were designated PT-22A.

Under Requisition C-248, 40 PT-22s were authorized under the Defense Aid in December 1941 and 30 more in January 1942 to be supplied to China under lend-lease. They were delivered in August of 1943. These PT-22s were accepted by USAAF from the manufacturer in November 1941 but stayed with Ryan for almost 2 years before they were shipped to China. USAAC/USAAF records show that they accumulated very little flying hours during this "storage" period which means that these aircraft were not used by USAAF for any flight training purpose. Similar to other types of training aircraft supplied to China, the PT-22s stayed in Lahore for flight training of the Chinese pilots conducted by USAAF personnel. Six PT-22s were diverted back to USAAF

for unknown reason in October 1944 of which two were transferred back to China in June 1945 again. Another seven more were also diverted back to USAAF on unknown date. According to Reference 1, after the flight training school was closed in November 1945, 207 aircraft were shipped to Shanghai in April 1946. The author believes that the surviving PT-22s must have been amount these 207 aircraft. Though these aircraft were lend-lease material, US decided to let China keep them and there was no record of any of the surviving aircraft being returned to U.S. possession.

Some aviation books reported that these 70 lend-lease aircraft were a mix of PT-20s, PT-21s, and PT-22s. USAAC records do not support this claim. These 70 aircraft were all PT-22s.

USAAF serials	#	Remarks
41-15177/15216	(40)	del. in August 1943
41-15298/15327	(30)	del. in August 1943

USAAF	Remarks
	to Lahore for Chinese Flight Training School (CFTS) in 8/43
41-15178	to Lahore for CFTS in 8/43
41-15179	to Lahore for CFTS in 8/43
41-15180	to Lahore for CFTS in 8/43
41-15181	to Lahore for CFTS in 8/43
41-15182	to Lahore for CFTS in 8/43
41-15183	to Lahore for CFTS in 8/43
41-15184	to Lahore for CFTS in 8/43
41-15185	to Lahore for CFTS in 8/43
41-15186	to Lahore for CFTS in 8/43
41-15187	to Lahore for CFTS in 8/43

41-15188 to Lahore for CFTS in 8/43
 41-15189 to Lahore for CFTS in 8/43
 41-15190 to Lahore for CFTS in 8/43
 41-15191 to Lahore for CFTS in 8/43
 41-15192 to Lahore for CFTS in 8/43
 41-15193 to Lahore for CFTS in 8/43
 41-15194 to Lahore for CFTS in 8/43
 41-15195 to Lahore for CFTS in 8/43
 41-15196 to Lahore for CFTS in 8/43
 41-15197 to Lahore for CFTS in 8/43
 41-15198 to Lahore for CFTS in 8/43,
 (*div. bk to USAAF on unknown date),
 investment lost in 4/1946
 41-15199 to Lahore for CFTS in 8/43
 41-15200 to Lahore for CFTS in 8/43
 41-15201 to Lahore for CFTS in 8/43
 41-15202 to Lahore for CFTS in 8/43
 41-15203 to Lahore for CFTS in 8/43
 41-15204 to Lahore for CFTS in 8/43
 41-15205 to Lahore for CFTS in 8/43
 41-15206 to Lahore for CFTS in 8/43,
 (*div. bk to USAAF on unknown date),
 investment lost in 4/1946
 41-15207 to Lahore for CFTS in 8/43
 41-15208 to Lahore for CFTS in 8/43
 41-15209 to Lahore for CFTS in 8/43
 41-15210 to Lahore for CFTS in 8/43
 41-15211 to Lahore for CFTS in 8/43
 41-15212 to Lahore for CFTS in 8/43
 41-15213 to Lahore for CFTS in 8/43
 41-15214 to Lahore for CFTS in 8/43
 41-15215 to Lahore for CFTS in 8/43
 41-15216 to Lahore for CFTS in 8/43
 41-15298 to Lahore for CFTS in 8/43,
 (*div. bk to USAAF on unknown date),
 investment lost in 4/1946
 41-15299 to Lahore for CFTS in 8/43
 41-15300 to Lahore for CFTS in 8/43, div.
 from China to USAAF in 10/44, condemned 3/45
 41-15301 to Lahore for CFTS in 8/43,
 (*div. bk to USAAF on unknown date),
 investment lost in 4/1946
 41-15302 to Lahore for CFTS in 8/43,
 (*div. bk to USAAF on unknown
 date), investment lost in 4/1946
 41-15303 to Lahore for CFTS in 8/43
 41-15304 to Lahore for CFTS in 8/43
 41-15305 to Lahore for CFTS in 8/43, div.
 from China to USAAF in 10/44, investment
 lost in 4/1946
 41-15306 to Lahore for CFTS in 8/43, div.
 from China to USAAF in 10/44,
 condemned 12/1944.
 41-15307 to Lahore for CFTS in 8/43
 41-15308 to Lahore for CFTS in 8/43
 41-15309 to Lahore for CFTS in 8/43,
 (*div. bk to USAAF on unknown
 date), investment lost in 4/1946
 41-15310 to Lahore for CFTS in 8/43

41-15311 to Lahore for CFTS in 8/43
 41-15312 to Lahore for CFTS in 8/43
 41-15313 to Lahore for CFTS in 8/43
 41-15314 to Lahore for CFTS in 8/43
 41-15315 to Lahore for CFTS in 8/43
 41-15316 to Lahore for CFTS in 8/43,
 (*div. bk to USAAF on unknown
 date), investment lost in 4/1946
 41-15317 to Lahore for CFTS in 8/43
 41-15318 to Lahore for CFTS in 8/43
 41-15319 to Lahore for CFTS in 8/43
 41-15320 to Lahore for CFTS in 8/43
 41-15321 to Lahore for CFTS in 8/43
 41-15322 to Lahore for CFTS in 8/43
 41-15323 to Lahore for CFTS in 8/43, div.
 from China to USAAF in 10/44,
 investment lost in 4/1946
 41-15324 to Lahore for CFTS in 8/43
 41-15325 to Lahore for CFTS in 8/43
 41-15326 to Lahore for CFTS in 8/43, div.
 from China to USAAF in 10/44, then
 diverted bk to China in 6/1945
 41-15327 to Lahore for CFTS in 8/43, div.
 from China to USAAF in 10/44, then diverted bk to
 China in 6/1945

Note *: Though not explicitly stated in USAAC/USAAF records, other telltale information suggests that these seven PT-22s were also diverted back to USAAF control on unknown date.

Note: Lend-lease supply of PT-22s to China was not the first time China operated the Ryan's ST-type aircraft. In 1940, China purchased 50 Ryan STM-2s(Sport Trainer Military) directly from Ryan of which 48 were 2-seat STM-2E trainers and two were single-seat STM-2P pursuit trainers. The STM-2Ps had the front cockpit covered and were armed with a single 0.3 calibre machine gun installed inside the fuselage and firing through the propeller. Delivery to China began from the factory in February 1940 and all were delivered by the Spring of 1941.

c/n	# built	Remarks
356/374	(19)	STM-2E
377/405	(29)	STM-2E
375/376	(2)	STM-2P

Though the STM-2 and the PT-22 (Model ST-3) were similar types of aircraft from the same manufacturer, the front section of these two types are quite different in appearance because of different types of engine installed. The PT-22s, with the Kinner R-540-1 radial engine, had a more streamlined bullet-shape front section with the engine cylinders

protruding out of the front fuselage for cooling. The STM-2s, with the Menasco C-4S inline air-cooled engine, had a more cylindrical shape front section with a big forward-facing opening to allow air flow to

cool the engine cylinders. Also the PT-22 was a bit longer in length than the STM-2 but this distinction was not readily obvious.

Summary

Through lend-lease, United States supplied China with eight AT-7s, 20 AT-6Ds, 16 BT-13As, and 70 PT-22s. Those supplied in 1943 and after were kept in India where Chinese pilots were trained by USAAF in these aircraft. Some of these aircraft were diverted back to USAAF control while in India. Among these aircraft, only some (but not all) were eventually released to China when the CFTS in India was disbanded in November 1945.

The fact that China Nationalist Government also purchased similar types of aircraft from the U.S. before World War Two adds confusion to many aviation historians on the exact identities of these lend-lease training aircraft. The following table summarizes the 4 types of trainer supplied to China under lend-lease and the similar types that were operated by China through direct purchase earlier:

Lend lease trainer supplied to China	Similar type(s) operated by China through direct purchase before lend-lease
AT-7 (8 supplied and 8 received)	Beech Model 18R (6)
AT-6D (20 supplied, only 2 received)	NA-16-4 (35) NA-16-3C (15) NA-16-5 (0) NA-16-4 (50)
BT-13A (16 supplied, only 5 received)	None
PT-22 (70 supplied, 59 received)	Ryan Models STM-2E (48) and STM-2P (2)

W. Yip (#1421) USA.

Author’s Note:

This is author’s effort to research into four types of training aircraft supplied to China through lend-lease during World War Two with emphasis on the identities (USAAC serial numbers) of these aircraft. Lend-lease training aircraft supplied to China were generally not well documented. There are a good number of aviation books on Chinese military aircraft of World War Two mainly on the history of the Flying Tiger but there is little mentioning of the training types supplied

under lend-lease. The source of information for this article is mainly from the United States Air Force Historical Research Agency. It is unfortunate that the author does not have much to offer in this article on the service history of these aircraft after they were released to China and the serials (if any) assigned to these aircraft by China. Also, in this article readers can detect a mix use of the terms USAAC and USAAF. The reason is USAAC was renamed USAAF on June 20,

1941 and this article covers the period from 1939 to 1945. The author plans to present the remaining three types of lend-lease training aircraft (Stearman PT-17, Fairchild PT-19, and Cessna AT-17) to China in future articles. Again, this article is by no means complete. The author welcomes comments and corrections from readers on this subject.

References

1. “A History of Chinese Aviation – Encyclopedia of Aircraft and Aviation in China until 1949” by Lennart Andersson

2. “The Modification and Development of Training Aircraft for AAF Use” by Dr. Edward O. Purtee, dated November 1946. Prepared by Historical Section Intelligence (T-2, Air Materiel Command, Wright Field.

3. “The Aircrafts of Chinese Air Force in the Sino-Japan War” published by Wings of China, Taiwan

4. “Air Arsenal North America – Aircraft for the Allies 1938-1945 Purchases and Lend-Lease” by Phil Butler with Dan Hagedorn.

5. United States Government document titled, “Lend-Lease Shipments, World War II” Section VII, dated 31 December 1946.

6. “Historical Aviation Album, Volume VI”, article on Beechcraft Model 18 by Ron Neal

7. “North American Aircraft 1934-1998 Volume 1” by Norm Avery

8. “North American T-6 SNJ, Harvard and Wirraway” by Peter C. Smith

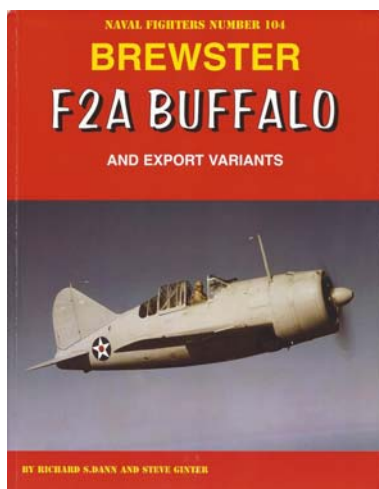
9. American Aviation Historical Society Journal Vol. 23, No. 2 (Summer 1979), “North American Aviation, Inc. Training Aircraft” by Dustin Carter

10.<http://www.cwlam2000.co.nf/cafx20.htm>

11.<http://www.cwlam2000.co.nf/cafx43.htm>

12. [U.S.] Air Force Historical Research Agency Records ACR28 (for PT-22), ACRs 26, 32, 56, & 71 (for BT-13A), ACR70 (for AT-6D) and ACR40 (for AT-7)

13. “Ryan Guidebook” by Dorr B. Carpenter and Mitch Mayborn



Brewster F2A Buffalo and Export Variants, by Rich Dann and Steve Ginter. Ginter Naval Fighters Number 104 176 pages. ISBN 978-0-9968258-6-3. Published July 2017

Rich Dann, 30+ years as a naval aviator and man behind the USN's Centennial Heritage paint schemes, is also known for his previous histories in the Squadron-Signal series. His work on the Brewster F2A moves to the Ginter Naval Fighter series, giving him a larger canvass to portray the Brewster fighter's history with the U.S. Navy and foreign air forces. More pages allow a detailed look into the development of the F2A, its service aboard carriers and at Midway, its and eventual employment as a fighter trainer in Florida. They also allow the author to explore little-known aspects like high-speed dive tests by NACA (NASA's predecessor) to measure trans-sonic airflow over the wings, and experiments with alternative armament (the photo of a proposed eight-gun Buffalo is a bit stunning!).

The photographic coverage includes many previously unpublished factory detail shots, and at least one picture of aircraft on the *Lexington* that amazed this reviewer.

While the emphasis is on the U.S. use, there is good coverage of British, Australian, Dutch, and Finnish aircraft, aided by input from aviation historians like Gerry Casius, Mark Haselden, Max Schep, Ronnie Olsthoorn, and Kari Stenman. Fifty pages of the book are devoted to foreign users with detail on the aircraft variants and an overview of

service. There is also a summary of model kits, past and present, in all available scales.

Rich Dann has turned up many new wrinkles in the Buffalo story, and the book will please the casual enthusiast and Buffalo expert alike.

Jim Maas (#411) USA.

Brewster F2A Buffalo and Export Variants: Naval Fighters Number 104, Richard S. Dann and Steve Ginter, Steve Ginter 2017, ISBN 13: 978-0-9968258-6-3, softbound, 176pp, 310 images

Maintaining the widely respected and standardized format of the Ginter Naval Fighters series, this tight, well-crafted monograph at long last pulls together, in one volume, the best overall summary on this study in contradictions ever published, in the opinion of the reviewer.

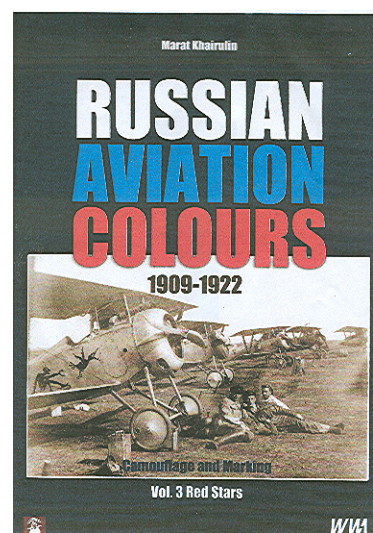
Rich in particular, in keeping with the standards of this series, with detailed images and excellent drawings – many of them crafted by Captain Dann – the roughly 52,960 word text is aided by 310 images, and it would be my guess that some 40% of these have probably never been published before or to this level of clarity and interpretation.

Of particular interest to SAFO readers are, of course, the pages between 105 and 176, which deal with the use of the redoubtable Finnish Model 239s, the ill-fated Belgian Model 339Bs, the Netherlands East Indies Model 339C/D and the British Commonwealth Model 339Es. A surprise for this reader was the coverage of the little-known Netherlands East Indies Model 339-23s, a designation new to me and of course the spin-off Finnish VL *Humu*.

There is also the standard kit coverage for modelers, and I, for one, was astonished by the information that apparently not fewer than 43 assorted kits have been produced to immortalize this controversial combat aircraft series!

It would be difficult to improve upon this contribution to the literature, but it can be hoped that the authors will find a USAAF evaluation report on the solitary F2A that somehow made its way to Wright Field during the war! That would be interesting reading as well!

Dan Hagedorn (#394) USA.



Russian Aviation Colours 1909-1922 Vol. 3, by Marat Khairulin. MMP Stratus Publications. 167 pages. 8.5 inch by 12 inch. UK cost £ 40.00.

Volume 3 is devoted to periods from the formation of the Worker-Peasant Red Air Force in the wake of the October Revolution of 1917 to 1921. This volume, in common with the first two, contains many rare photos and complementary colour side-view drawings that are to the same high quality as the earlier volumes. The artwork carried by the Russian aircraft is truly exceptional when compared to Western Air Forces of the same era. Hopefully, some enterprising decal manufacturer will release some sets in the standard scales to help us modellers come up with something truly different.

This volume begins with a brief Acknowledgement, followed by about fifty pages describing the development of the now familiar Red Star insignia. Some examples are bizarre to say the least as the various units managed to find different ways of getting it wrong! One thing new to me is that the well-known Hammer & Sickle was originally the Hammer & Plough.

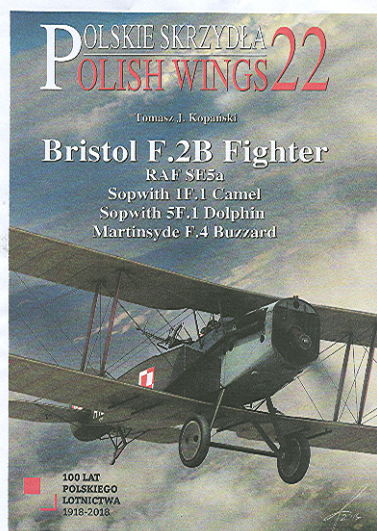
The book then goes through the different Otryads, which is roughly a Squadron, reconnaissance units, the Moscow Aviation School, variations on the Il'ya Muromets unit markings and finishes, and various individual pilot emblems.

The colour illustrations cover some 24 types. These are mainly Nieuport scout variants (43), assorted French types

(16) including the Salmson-Moineau SM1 one of the era's odder looking aircraft, British types (17) mostly assorted Sopwiths but several DH-9s, German recce aircraft (3) DFW & LVG CVs, and Russian (7) two Anasal and five Il'ya Muromets. Some of the above are captured aircraft from various fronts.

All in all, another triumph in this series which makes me long for the final volume next year (I hope) which will cover 'Against Soviets'. Malcolm Barratt (#1715) UK.

[Editor's note: It pays to shop around. At the current exchange rate (October 2017), the UK price of £40.00 comes to \$53.16. Amazon.com offers Vol. 1 for \$75.00, Vol. 2 for 32.29, and Vol. 3 for 43.50. Casemate has Vol. 1 on sale for \$48.99.]



Polish Wings 22: Bristol F.2B Fighter, RAF SE5a, Sopwith 1F.1 Camel, Sopwith 5F.1 Dolphin, Martinsyde F.4 Buzzard, by Thmasz J. Kopanski. Status Publications. 80 A4-size pages. UK price £15.00.

This publication covers the British fighter aircraft delivered to the emergent Polish nation after the Russian Revolution of 1917. There is a general overview of the situation and a chapter on the Camouflage & Markings mainly British PC10 over clear dope, but also a Polish Green and in latter days the Polish 3-tone 1924 pattern and colours.

The main content is the coverage of the many Bristol F.2B Fighter bought by Poland; only three of which had the Rolls Royce Falcon engine - the remainder having Hispano-Suiza engines.. There are

side-view artwork on some 24 aircraft together with upper surface views of the original finish and the later three-tone scheme.

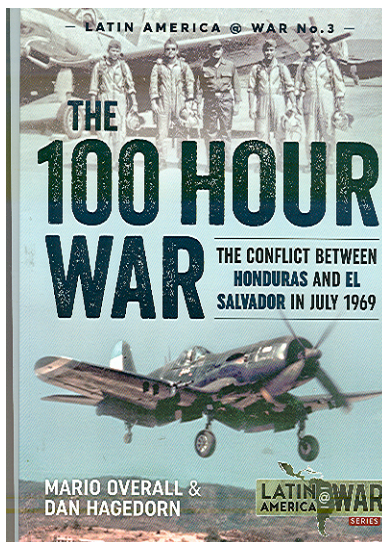
Volume 3 of the same publisher's work on *Russian Aviation Colours* has a side view of an F.2B Fighter captured and used by the Russians. These two books have different opinions of the colours.

Also covered are the Sopwith Dolphin and Martinsyde Buzzard (the one with overall red & white stripes).

A color three view and some photos of a Sopwith Camel owned and flown by an American volunteer is followed by coverage of the few RAF SE5A aircraft showing two colour schemes and photo coverage of several Savage Skywriting aircraft which visited Poland.

I have to confess that the previous 21 editions of this series have eluded me so far, but if this is the standard they are well worth seeking out as they cover all periods of Polish aviation and have many rare and interesting photos. Malcolm Barratt (#1715) UK.

[Editor's note: The volumes of *Polish Wings* that I have seen are excellent and can be highly recommended. Vol. 22 is available from Amazon.com for \$18.12.]



The 100 Hour War: The Conflict between Honduras and El Salvador in July 1969, by Mario Overall & Dan Hagedorn. Latin America @ War, No. 3. 72 A-4 pages (Soft bound) Published by Helion & Company, UK. Distributed in the US by Casemate, 1950 Lawrence Rd., Havertown, PA 19083. \$49.95.

The 1969 conflict between El Salvador and Honduras was called the "Soccer War", but it had much deeper roots than a game. In the early 1900s, short of laborers, Honduras imported workers from El Salvador, and more than 300,000 Salvadoran settled in Honduras. However, when the Honduran government felt the pressure of "land reform"; rather than take land from the rich landowners, they expropriated land from the Salvadorians and repatriated them to El Salvador. This influx of destitute people put such financial and emotional stress on the Salvadorian government that they decided to use force to obtain land from Honduras. At first the land campaign went well for El Salvador, but it bogged down when the Honduran Air Force took command of the skies and carried out devastating attacks on Salvadorian ground forces. The war was over in 100 hours.

This book describes both the land and air combat in detail. There are over 90 photos – the vast majority of which are of aircraft. Sixteen pages of color illustrations include 5 maps and 22 excellent color aircraft profiles:

Fuerza Aérea Salvadoreña (FAS) Vought FG-1D Corsair (2), Douglas C-47, North American Mustangs (4) and SNJ-5, Cessna U-17A, 310 and T-41, and Piper PA-28.

Fuerza Aérea Hondureña (FAH) Vought F4U-4/-5N Corsair (5); North American T-28A and SNJ-4, Douglas C-47, and Cessna U-17A

These profiles are accompanied by informative captions; as the following examples show:

The most famous aircraft of the war is Vought Corsair F4U-5N FAH-609: On 17 July, Captain Fernando Soto Henriquez shot down two FAS FG-1D and a Mustang II,

Also of special notice is T-28A FAH-213 that Lieutenant Roberto Mendiza was flying when he damaged a FAS FG-1D that was attacking the Honduran Air Force Headquarters.

C-47s of both the FAS (FAS-104) and (FAH-301) were used as bombers as was Cessna T-41A (FAS-91) when it attacked Honduran military positions rolling out 60mm and 81mm mortar shells.

I found the maps of the ground campaign difficult to coordinate with the

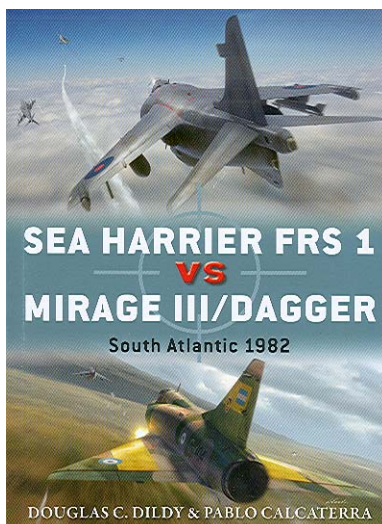
text, but two maps of aerial activity were fascinating: The first shows the FAS plans for an preemptive air strike on strategic targets in Honduras on the first day of the war (July 14) – for reasons unknown, the majority of these targets were not attacked., The second map shows FAH successful July 15 retaliatory attacks on Salvadoran targets.

A story within a story is the FAS acquisition during the conflict of various versions of the Mustang - including F-51D, Trans Florida Mustang II, and Cavalier Mustang. These were all civilian a/c that required re-militarized by installing guns and improvising gun sights.

The two appendices provide order-of-battle for both the FAS and FAH in July 1969. These tables list: Type, MSN, Prev. ID, Serial, and Comments. At the beginning of the war on 14 July, the FAS had 29 aircraft and the FAH had 34 aircraft.

This book is highly recommended to all aviations enthusiasts including the modelers looking for something unique for their next small-air-forces project. For the aviation historian, It is an excellent case study of the proper use of air power (FAH) and the and the dangers of maintaining a viable air force (FAS).

The 100 Hour War is available from Casemate for \$32.50 and a real bargain from Amazon.com for \$20.67.



Sea Harrier FRS 1 vs Mirage III/Dagger, by Douglas C. Dildy and Pablo Calcaterra. Osprey Duel Series. 80 pages (soft cover). Osprey Publishing www.ospreypublishing.com.

I was not familiar with Osprey's "Duel" series, but when I received an issue from these authors, I knew I was in for a treat because of the high quality of their work in SAFO.

The book begins with four chapters of background information:

"Design and Development" covers the development of the Mirage IIIEA and its evolution into the Dagger. Similarly, the steps from Harrier to Sea Harrier are covered.

"Technical Specifications" Technical specifications for the Mirage IIIEA, Dagger, and Sea Harrier FRS 1 are described next.

"The Strategic Situation" The background of the conflict between Argentina and the UK over the Falkland Islands/Islands Malvinas is covered up to the time the British Task Force arrived in the area. Defending the Royal Navy Task force against Argentine Air Force (FAA) attacks were two squadrons flying 20 Sea Harriers between them.

"The Combatants" describes the training of Sea Harrier and Mirage/Dagger pilots, and the tactics used by both aircraft types.

"Combat" begins on page 48. "FA fighter-bombers used daring and courageous Itra low-level attacks frequently escaping the Sea Harrier's limited capabilities to inflict serious damage to task force elements," The authors go into great detail describing each encounter between Sea Harrier and Mirage/Dagger - as to be expected from an author who is a former F-15 pilot.

The book ends with "Statistics and Analysis" and "Aftermath".

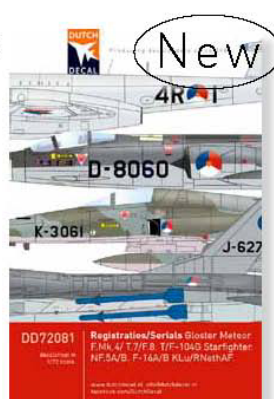
The book is well illustrated with color photos. One disappointment is the lack of color profiles of the aircraft that participated in the combats. However, there are nice color 3-view drawing of a FAA Dagger and a RN Sea Harrier.

Sea Harrier FRS 1 vs Mirage III/Dagger is a well-research book and a thoroughly enjoyable read. It is available in the UK for £12.99 and the US for \$20.00. It is also available from Amazon.com for \$15.28.

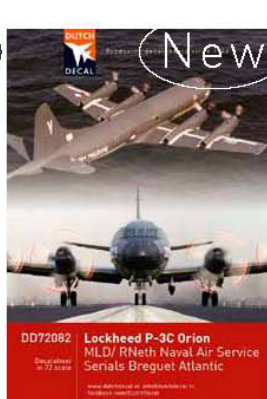
-decals-decals-decals-decals-decals-decals-decals-decals-decals-decals-



DD72080: 'Dutch Jets' Meteor 4/8 T.7, T-33, NF-5A/B KLU Nieuw nu verkrijgbaar/ available now



DD72081: 'Registraties/serials KLU' Meteor, F-104, NF-5A/B, F-16A/ Nieuw nu verkrijgbaar/ available now



DD72082: P-3C Orion MLD/ RNeth Navy. Serials Breguet Atlantic. Nieuw nu verkrijgbaar/ available now



DD48058: Gaat niet door wegens gebrek aan belangstelling. Cancelled



In voorbereiding: Dutch Profile Publication. **Vleugels der Victorie**. De tentoonstelling van de RAF en de USAAF op Schiphol en de Dam in het najaar van 1945. 40 pages in FC. Beperkte oplage 250 stuks.

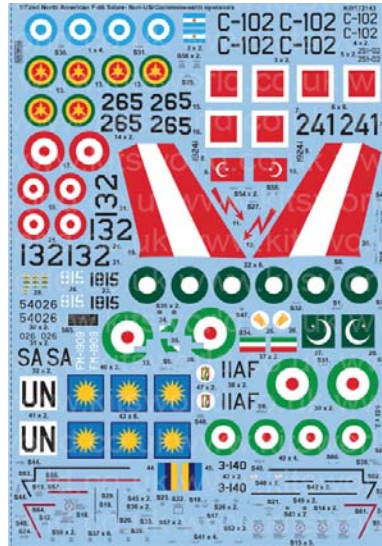
decals- decals- decals- decals- decals- decals- decals- decals- decals- decals- decals-

[Editor's note: These Kits-World decals caught my attention in the "New Products" department in a recent issue of *FineScale Modeler*. The number of countries cover by these three sheets is mind-boggling. I found kits-World on the Internet at www.kitsworld.com.uk where these three decal sheets are listed at £10.20 – approximately \$13.50 at the current exchange rate (October 2017).]



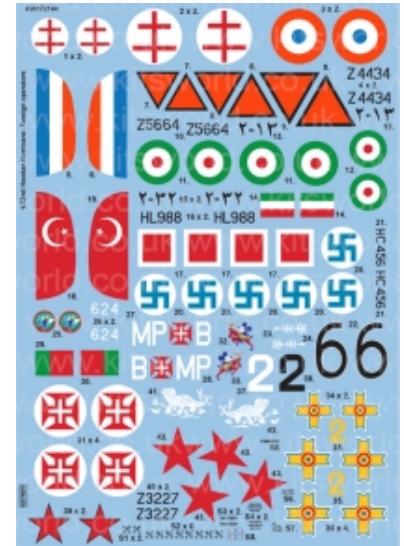
KW172141 North American Rockwell OV-10 Bronco

1. OV-10F Bronco, operated by Skadron Udara 21, Indonesian Air Force.
2. OV-10A Bronco, operated by the Naval Weapons Evaluation Facility, based at NWEF Albuquerque, New Mexico, early 1980's.
3. OV-10C Bronco, operated by the 16th Strike Squadron, 15th Strike Wing, Philippines Air Force, based at Danielo Atienza AB, 2005.
4. OV-10E Bronco, operated by Escuadron 40, Venezuelan Air Force, mid-1980's.
5. OV-10E Bronco, operated by Escuadron 40, Venezuelan Air Force, 1990's.
6. OV-10A Bronco, operated by the US Naval Air Test Center, based at NAS Patuxent River, Maryland, early 1980's.
7. OV-10A Bronco, operated by the Royal Moroccan Air Force, 1981.
8. OV-10B Bronco, operated by the Schie platzstaffel, Luftwaffe, based at L beck, West Germany, 1985.
9. OV-10C Bronco, operated by 411 Squadron, 41 Wing, Royal Thai Air Force, based at Chiang Mai, 2002.
10. OV-10A Bronco, operated by VMO-2, based at MCALF Camp Pendleton, 1970's.
11. OV-10A Bronco, operated by the Naval Weapons Center, NAS China Lake, mid-1970's.



KW172143 North American F-86 Sabre

1. F-86F-30, 251-02/C-102, Grupo 1 de Caza Bombardero IVº, Brigada Aerea, Fuerza Aerea Argentina, based at Aerea Militar El Plumerillo (Mendoza), 1960's.
2. Sabre Mk.2 (F-86E(M)), 19241/241, 141 Filo, Turkish Hava Kuvvetleri, 1960's.
3. F-86F-25, '265', 1st Fighter Bomber Squadron, Imperial Ethiopian Air Force, Debre Zebit Air Base, 1960's.
4. F-86F, '132', Escuadron de Caza 12, Fuerza Aerea Peruana, late 1950's
5. Sabre Mk.6, 1815/815, 18 Squadron 'War Hawks', based at Masroor AB, Pakistan, 1981.
6. F-86F-40, 54026/SA, flown by Sqdn Ldr Mohammed Mahmood Alam, 11th Fighter Squadron, 32nd Air Wing, Sargodha AB, Iran, 1965.
7. F-86F-30, 3-140, Imperial Iranian Air Force, based at Vahoati AB, but used in UN operations over the Congo, 1963.
8. Sabre Mk.27, FM-1909, No. 11 Squadron, Tentara Udara Diraja, Malaysia, 1970's.



KW172144 Hawker Hurricane: Foreign Operators

1. Hawker Hurricane Mk. I/Trop, Z4434, operated by the Groupe Bretagne, Forces Aériennes Françaises Libres (FAFL), North Africa, 1942.
2. Hawker Hurricane Mk. IIb/Trop, Z5664, operated by 2-VI-G IV,KNIL-LVA, Kalidjati, Java, Dutch East Indies, 1942.
3. Hawker Hurricane Mk. IIc/Trop, 2-13, operated by the Imperial Iranian Air Force, Doshan Teppah AB, 1947.
4. Hawker Hurricane Mk. IIc/Trop, 2-32, operated by the Imperial Iranian Air Force, Doshan Teppah AB, 1947. (Aircraft has been modified as a two-seat trainer).
5. Hawker Hurricane Mk. IIc/Trop, HL988, operated by the Türk Hava Kuvvetleri (Turkish Air Force), Middle East, 1942. Note overpainted original RAF markings.
6. Hawker Hurricane Mk. I, HC456, flown by Capt. Heikki Kalaja, 1/LeLv 30, Ilmavoimat (Finnish Air Force), Utti, July 1941.
7. Hawker Hurricane Mk. IIc, MP+B/624, operated by the Esquadilha MP, Força Aérea Portuguesa (Portuguese Air Force), Sintra AB, Portugal, 1950's.
8. Hawker Hurricane Mk. I, '2', flown by Adj. stag. av. Eugen (Evghenie) Camenicianu, Escadrila 53, Grupul 5 Vânătoare, Aeriene Regale ale României (Royal Romanian Air Force), Mamaia, June 1941.
9. Hawker Hurricane Mk. IIb, Z3227, operated by the 769th IAP, 122nd IAD, PVO, Poduzhemye airfield, March 1942.

-letters- letters- letters- letters- letters- letters- letters- letters- letters-

[Editor: I wrote to the author of the article on Yugoslav Hawker Furies that appeared in the French magazine *Avions* asking for permission to publish an English translation of his article. His answer follows.]

"I'm always willing to cooperate, but at this time I'm not in position to do so. The Fury article represents almost one third of the material from my new book (*Hawker – The Yugoslav Story: Fury, Hind and Hurricane in VVKJ Service*). The text and translation into English are finished, as well as the Fury and Hind color profiles; and I'm waiting for Hurricane profiles to be done. It will be in A4 hardcover, about 200+ pages and photos and 30+ color profiles. It's scheduled for release in 2018 on the 77th anniversary of the April War.

"I hope you understand my position regarding the Fury article published in *Avions*. If I can help in any other way, please let me know."

Aleksandar M. Ognjevic

[Editor: In a follow-up letter, Aleksandar wrote:]

"There is only couple of us here writing about Serbian/Royal Yugoslav/post-WW2 Yugoslav Air Forces. The generation before us has done absolutely nothing regarding these issues.

"Leadensky Books is a one-man band (me) and beside that there is only a very small publishing 'business'. I'm writing articles for *Avions* and some local magazines. I wrote and published the books, *Blenheim: The Yugoslav Story* (2014 English), *Serbian AF Memorial: Col Miodrag Tomic Memoires* (2015 English-Serbian), *Combat Diary: Royal Yugoslav Army AF, April 1941 Vol 1* one of four planned (2016 Serbian), *Secrets of Royal Treasure* (2016 Serbian; publisher was Evro Book), and I was one of main contributors to Brian Cull's *Blenheim over Greece and Crete* (2014).

"A couple of us here are writing for foreign magazines. At the moment I'm stretched between four projects (read books) *Hawker* is one of them. Just to mention that my main interest is Serbian/Yugoslav aviation history 1911-1945 period.

"I will send a photo of the book cover in pdf as soon as *Hawker* is finished. If you want, I can send you the

covers for *Blenheim, Serbian AF Memorial and RYAAF Combat Diary*. It's up to you. My website www.leadenskybooks is active, but not its Paypal segment. It's also not completed/updated at the moment (couple of titles missing). I hope it will be updated in near future with all gadgets functioning. I'll let you know. If anyone is interested in my books (couple of them left) I should be contacted via email.

"Give me some time and I will prepare a nice small article for SAFO regarding Serbian/Yugoslav aircraft. It will be my pleasure."

Aleksandar M. Ognjevic

"I thoroughly enjoyed #162, especially the photos in Exotic Birds 11. The photo of the Tu-134A highlighted the legacy of the Cold War with the replacement of the Belarus white flag with red bar with the current Soviet era red and green flag sans hammer and sickle.

"The photo of the camouflaged Morocco Sea Furies raised some questions. The decal sheet from Print Scale released earlier this year noted the aircraft were either bare metal or painted grey with the Moroccan red disc with a green or gold star insignia. It would be great to get more information on the camouflage colors and the rare green star insignia on the fuselage and wings noted in the photo caption.

"The article of the pan-Arab No. 20 Squadron, especially its service in Yemen, raised some interesting questions. I read that 24 Il-10 (B-33 Czech-built versions) were exported to Yemen in 1957. Yemen was ruled as an absolute monarchy at the time. The Mutawakkilite Kingdom of Yemen had been proclaimed in 1926; Imam Ahmad succeeded his father as temporal king as well as a (Zaydi) spiritual leader in 1955. His reign was marked by growing friction with Britain whose presence in the south stood in the way of his aspiration for the creation of Greater Yemen. In 1956, Ahmad, supported by Arab nationalism, signed a mutual defense pact with Egypt. The Soviets supplied MiG-15 and MiG-17 along with the Il-10's.

"Ahmad died in 1962 and was succeeded by his son whose reign was brief. He was deposed by Egyptian-

trained military officers thus ending the Yemeni Mutawakkilite monarchy in September 1962. The Yemeni Arab Republic (YAR) was created and fighting ignited the North Yemen Civil War. The war began in 1962 and ended in 1970; the Republicans received support from Egypt and the Soviet Union while the Royalist forces loyal to the imamate were supported by the monarchies of Saudi Arabia and Jordan.

"I am looking forward to the new IL-10 1/72-scale Il-10 kit to be released by FLY. It will be a welcome alternate to the 45 year old KP kit. The Mutawakkilite Kingdom of Yemen used a solid red flag with a sword and a red-white-red roundel for its aircraft until the abolishing of the monarchy in 1962. Perhaps, your readers could provide more information on the camouflage, markings, and service for the Yemeni Il-10. The markings would truly be more exotic than the more commonplace markings for Il-10 in Soviet, North Korean and Warsaw Pact air force service."

Vince Gostkowski (#860) USA.

"Congratulations on another excellent edition of SAFO. Though I'm not keen on jet aviation, the items on the Mexican Vampires and 20 Arab Squadron were something of a revelation. Part 2 of LVA 1917 was well up to Frits Gerdess's usual high standard in the 'I've never seen that photo before' department. And thanks to Greg Kozak for the Mali Let L-200 – some inspiration for a model there, especially now that I checked it out in colour on Airliners.net. Thanks to Rudi Hoefling for mentioning the Austrian Fiat CR20 decals – alas my eyesight will only accept 1/48 and bigger these days."

Malcolm Barratt (#1715) UK.

"I am looking for info on the F-86 in Panamanian markings that was a 'gate guard' outside the Tocumen Air Force base in 1975. Dan Hagedorn's book contains a color picture of it. The aircraft was called 'El Halcon Gris'. Do any SAFO readers have close-ups of the nose or wing markings?

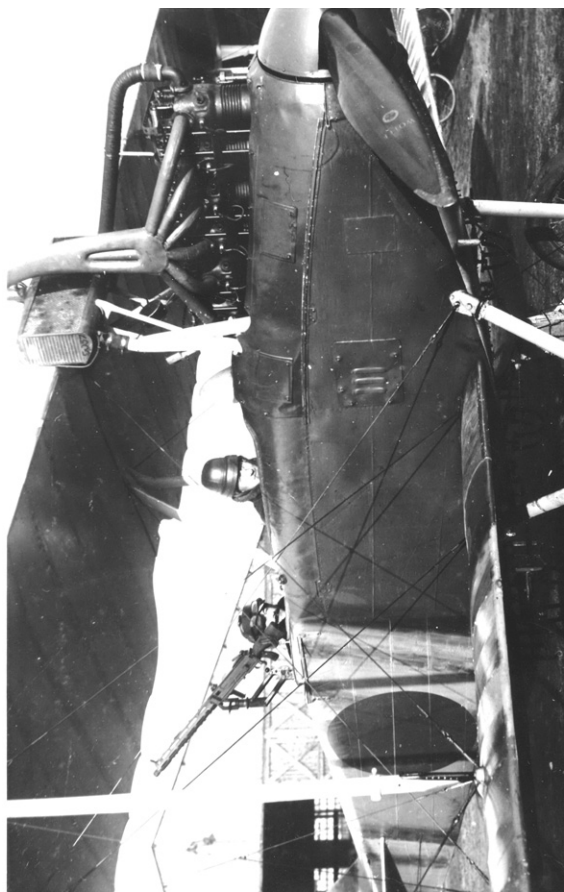
Greg Kozak (#1599) USA.



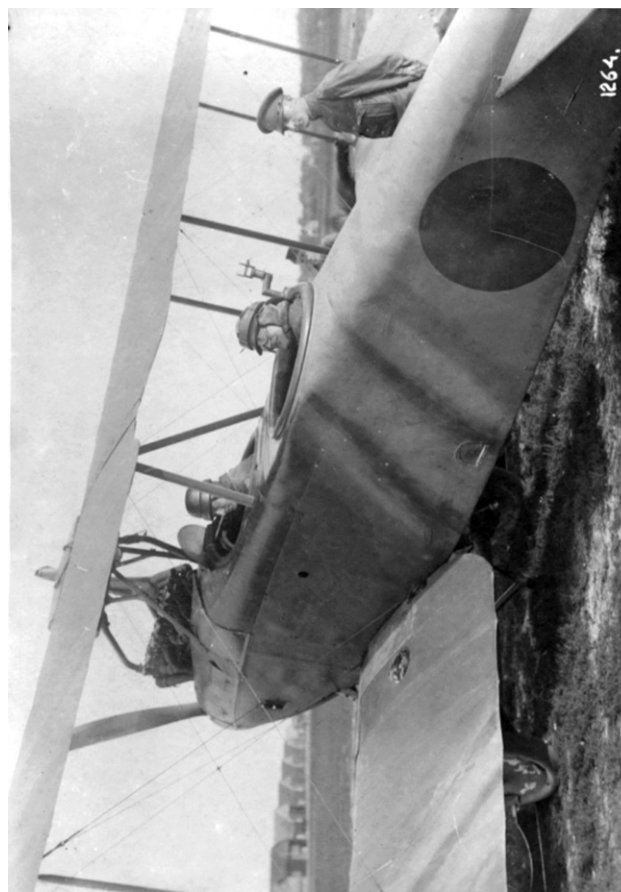
Lt. Van Wulfften Palthe crashed on 6 June 1918 during the visit by Prince Hendrik (at left). Rumppler R421 was w/o, but the crew suffered only bruises.



Rumppler C.I R410 (ex 2560/17) was short-lived. Interned intact on 1 December 1917, it was lost in a crash on 5 February 1918. The pilot, Lt. R. Drost, was unhurt and the Benz engine survived and was later mounted in Albatros C.III AL411 (6299/17, interned on 7 December 1917).



On 9 March capt. F.A. van Heijst took the War Minister aloft in DFW C.V D406, ex LA47.



On 6 June, Prince Hendrik was a passenger of capt. Van Heijst in DFW C.V D406, ex LA47. At right sgt., J.W. van der Drift.



A-203 after the war. Armed with a pair of Matra R550 Magic “heat seeking” missiles, its “kill markings” are proudly displayed ahead of the 2° Escuadrilla Aeronaval de Caza y Ataque “La Lora” (“Angry Parrot”) squadron emblem. (Juan Carlos Cicalesí Archive)



A-204 on exhibition during an ‘open day’ at BAN Comandante Espora, with its wide assortment of weaponry, as well as a reconnaissance pod, on display around it. (Martín Otero)